

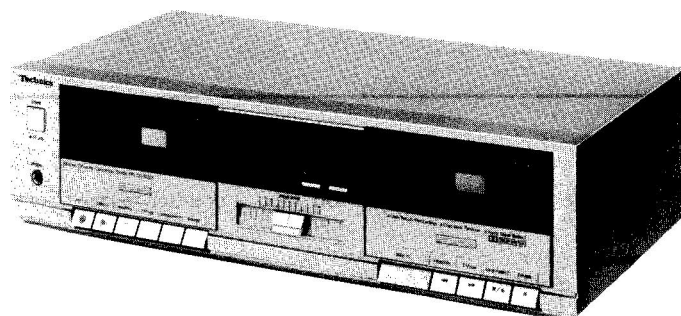
Service Manual

Cassette Deck



Dolby NR-Equipped
Double Cassette Deck

RS-D550W
RS-B17W
RS-B24W



Color

(K)...Black Type
(S)...Silver Type

- The photographs show RS-D550W (for [E] mark areas).
- The function and operating method of RS-B17W and RS-B24W are the same as for RS-D550W.

Color	Areas
(K)	[M] U.S.A. (RS-B24W)
(K) (S)	[E] All European areas except United Kingdom. (RS-D550W)
(K) (S)	[EK] United Kingdom. (RS-D550W)
(K) (S)	[EH] Holland. (RS-D550W)
(K) (S)	[EGA] F.R. Germany. (RS-D550W)
(K)	[PA] Far East PX. (RS-B17W)
(K)	[PE] European Military. (RS-B17W)
(K) (S)	[XA] Asia, Latin America, Middle East and Africa. (RS-D550W)
(K) (S)	[XL] Australia. (RS-D550W)

RS-D550W MECHANISM SERIES SPECIFICATIONS

Deck system	Stereo cassette deck
Track system	4-track 2-channel
Heads	
(TAPE 1) PLAY	MX head
(TAPE 2) REC/PLAY	MX head
Erasing	Double-gap ferrite head
Motors	
(TAPE 1) Capstan/reel table drive	DC motor
(TAPE 2) Capstan/reel table drive	DC motor
Recording system	AC bias
Bias frequency	80 kHz
Erasing system	AC bias
Tape speed	4.8cm/sec (1-7/8 ips)
Frequency response	
Metal	20 Hz-17,000 Hz 30 Hz-16,000 Hz (DIN) 40 Hz-15,000 Hz ±3 dB
CrO ₂	20 Hz-16,000 Hz 30 Hz-15,000 Hz (DIN) 40 Hz-14,000 Hz ±3 dB
Normal	20 Hz-15,000 Hz 30 Hz-14,000 Hz (DIN) 40 Hz-14,000 Hz ±3 dB
S/N (Signal level = max. recording level, CrO ₂ tape)	
Dolby B NR in	66 dB (CCIR)
NR out	56 dB (A weighted)

Wow and flutter 0.08% (WRMS)
±0.16% (DIN)

Fast Forward and Rewind time
Approx. 110 seconds with C-60 cassette tape

Input sensitivity and impedance
LINE 60mV/47 kΩ

Output voltage and impedance
LINE 400mV/1.5 kΩ

HEADPHONES 80 mV/8Ω

Power consumption 12 W

Power supply [M] AC; 120V, 60 Hz

[E][EH][EGA] AC; 220V, 50 Hz/60 Hz

[EK][XL] AC; 240V, 50 Hz/60 Hz

[PA][PE][XA] AC; 110V/127V/220V/240V,

50 Hz/60 Hz

Preset power voltage 240V

Dimensions (W×H×D) 430×114×229mm

(16-29/32"×4.15/32"×9")

Weight 3.5kg (7 lb)

Design and specifications are subject to change without notice.

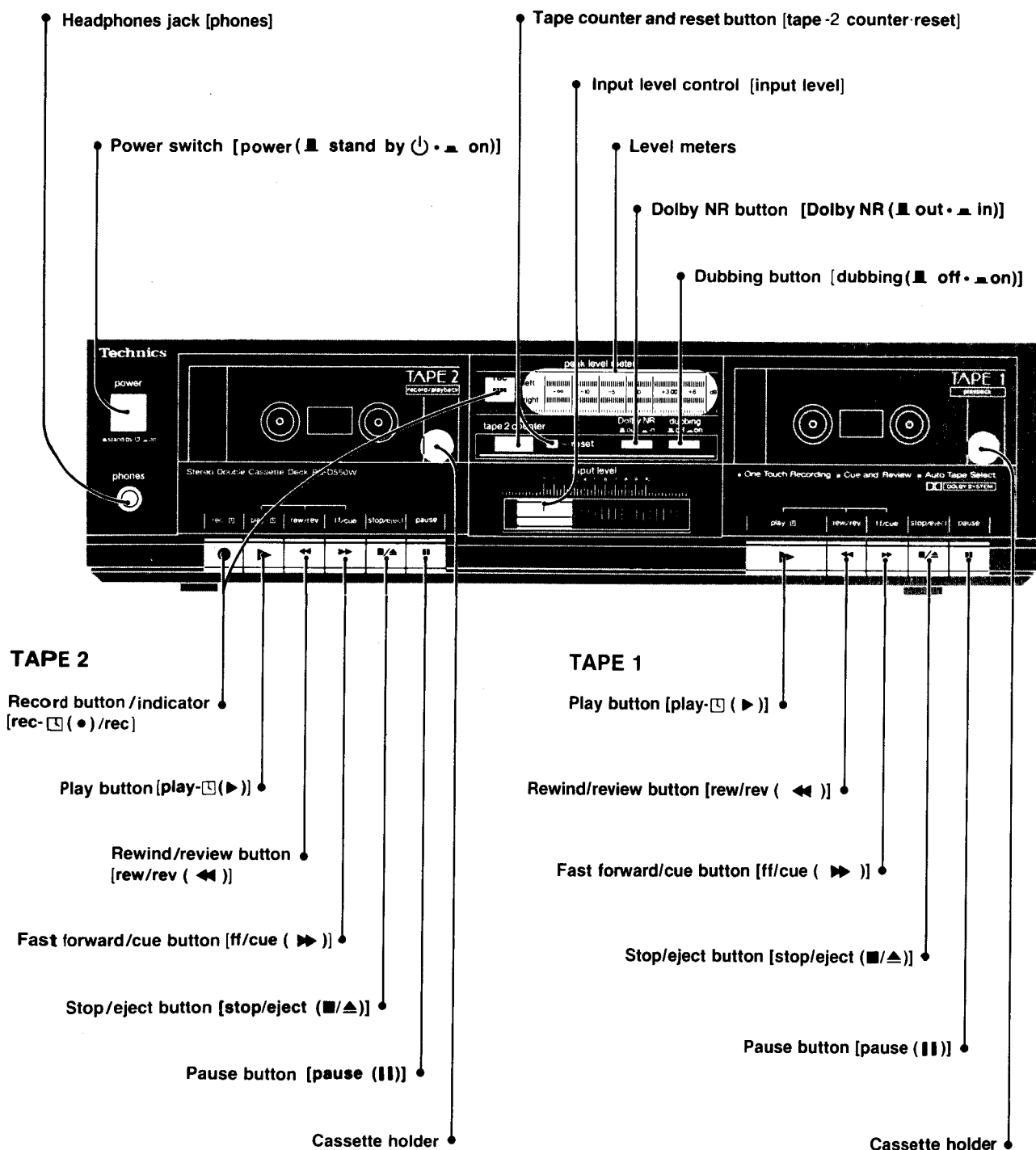
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Technics

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■ LOCATION OF CONTROLS



Parts Change Notice

RS-D550W (E/EK/EH/EGA/XA/XL)
Model No. RS-B17W (PA/PE)

Service Manual
Order No. HAD85052560C9

Please revise the original parts list in the Service Manual to conform to the change (s) shown herein. If new part numbers are shown, be sure to use them when ordering parts.

Reason for Change			*The circled item indicates the reason. If no marking, see the Notes in the bottom column.			
1.	Improve performance					
2.	Change of material or dimension					
3.	To meet approved specification					
4.	Standardization					
5.	Addition					
6.	Deletion					
7.	Correction					
8.	Other					
Interchangeability Code						
**The circled item Indicates the interchangeability. If no marking, see the Notes in the bottom column.						
	Parts		Set Production			
A	Original		Early	Original or new parts may be used in early or late production set. Use original parts until exhausted, then stock new parts.		
	New		Late			
B	Original		Early	Original parts may be used in early production sets only. New parts may be used in early or late production sets. Use original parts where possible, then stock new parts.		
	New		Late			
C	Original		Early	New parts only may be used in early or late production sets. Stock new parts.		
	New		Late			
D	Original		Early	Original parts may be used in early production sets only. New parts may be used in late production sets only. Stock both original and new parts.		
	New		Late			
E	Other					
Part Number						
Model No.	Ref. No.	Original Part No.	New Part No.	Notes (***)	Part Name & Descriptions	
RS-B17W/D550W	CN11	QJT1052	QJT1054	7, C	Contact	
RS-B17W/D550W	149	SMQ4858	SMQ4854	7, C	Pause Button Level Ass'y	

File this Parts Change Notice with your copy of the Service Manual.

Technics

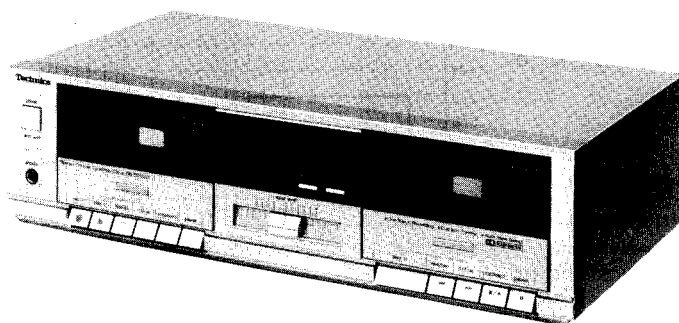
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Service Manual

Supplement-1Dolby NR-Equipped
Double Cassette Deck

Cassette Deck

RS-D550W
RS-B17W
RS-B24W


Color

 (K)...Black Type
 (S)...Silver Type

- The photographs show RS-D550W (for [E] mark areas).
- The function and operating method of RS-B17W and RS-B24W are the same as for RS-D550W.

RS-D550W MECHANISM SERIES

- Please use this manual together with the service manual for model No. RS-D550W/B17W/B24W (Original) order No. HAD85052560C9.

Color	Areas	
(K)	[M].....U.S.A.	(RS-B24W)
(K) (S)	[E].....All European areas except United Kingdom.	(RS-D550W)
(K) (S)	[EK].....United Kingdom.	(RS-D550W)
(K) (S)	[EH].....Holland.	(RS-D550W)
(K) (S)	[EGA]...F.R. Germany.	(RS-D550W)
(K)	[PA].....Far East PX.	(RS-B17W)
(K)	[PE].....European Military.	(RS-B17W)
(K) (S)	[XA].....Asia, Latin America, Middle East and Africa.	(RS-D550W)
(K) (S)	[XL].....Australia.	(RS-D550W)

PARTS COMPARISON TABLE:

Please revise the original parts list in the Service Manual (RS-D550W/B17W/B24W) to conform to the changes shown herein.

If new part numbers are shown, be sure to use them when ordering parts.

Ref. No.	Part Name & Description	Part Numbers		Remarks
		Former Type	New Type	
CAPACITOR				
C31, 32	Capacitors	ECEA1HU4R7 (4.7μF)	ECEA1HU3R3 (3.3μF)	
* C306	Capacitor	ECKW1H103Z (0.01μF)	EXRP103Z561S (0.01μF, 560Ω)	
RESISTOR				
R309	Resistor	ERD25FJ561 (560Ω)	————	Deletion

* C306 is combination part.

Design and specifications are subject to change without notice.

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MEASUREMENTS AND ADJUSTMENTS (CORRECTION)

Overall frequency response (TAPE 2)

Condition:
 • Record/playback mode
 • Input level controls...MAX

Equipment:
 • EVM (Electronic Voltmeter)
 • ATT
 • AF oscillator
 • Oscilloscope

• Resistor (600Ω)
 • Test tape
 (reference blank tape)
 ...QZZCRA for Normal
 ...QZZCRX for CrO₂
 ...QZZCRZ for Metal

Note:

Before measuring and adjusting, the overall frequency response make sure of the playback frequency response (For the method of measurement, please refer to the playback frequency response).

(Recording equalizer is fixed)

1. Make connections as shown in fig. 11.
2. Insert the normal reference blank test tape (QZZCRA).
3. Supply a 1kHz signal from the AF oscillator through ATT to LINE IN.
4. Adjust ATT so that input level is -20dB below standard recording level (standard recording level = 0 VU).
5. Adjust the AF oscillator frequency to 1kHz, 50Hz, 100Hz, 200Hz, 500Hz, 4kHz, (8kHz and 10kHz) signals, and record these signals on the test tape.
6. Playback the signals recorded in step 5, and check if the frequency response curve is within the limits shown in the overall frequency response chart for normal tapes (fig. 10). (If the curve is within the charted specifications, proceed to steps 7 and 8.)

If the curve is not within the charted specifications, adjust as follows;

Overall frequency response chart (Normal)

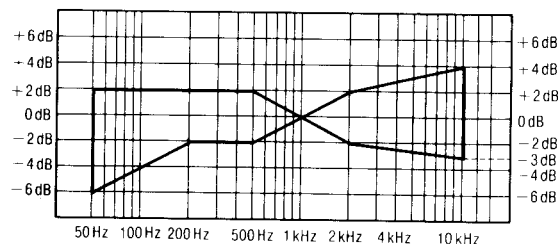


Fig. 10

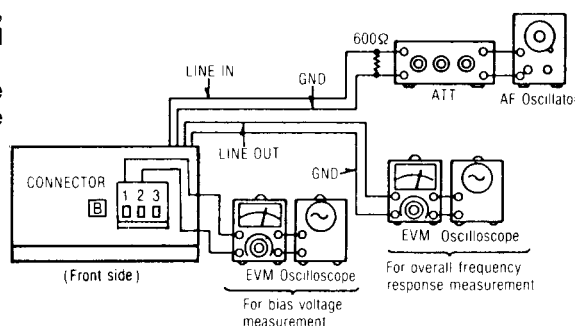


Fig. 11

Adjustment (A):

When the curve exceeds the overall specified frequency response chart (fig. 10) as shown in fig. 12.

- 1) Increase bias current by turning VR301 (L-CH) and VR302 (R-CH). (See fig. 1.)
- 2) Repeat steps 5 and 6 for confirmation (Proceed to steps 7 and 8) if the curve is now within the charted specifications as shown fig. 10.)
- 3) If the curve still exceeds the specifications (fig. 10), increase bias current further and repeat steps 5 and 6.

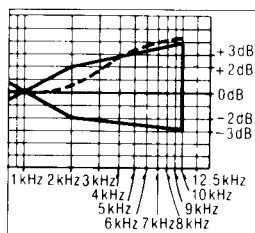


Fig. 12

Adjustment (B):

When the curve falls below the overall specified frequency response chart (fig. 10) as shown in fig. 13.

- 1) Reduce bias current by turning VR301 (L-CH) and VR302 (R-CH).
- 2) Repeat steps 5 and 6 for confirmation (Proceed to steps 7 and 8) if the curve is now within the charted specifications as shown fig. 10.)
- 3) If the curve still falls below the charted specifications (fig. 10), reduce bias current further and repeat steps 5 and 6.

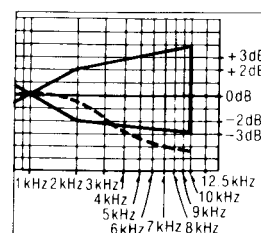


Fig. 13

7. Change test tape to CrO₂ reference blank test tape (QZZCRX), and record 1kHz, 50Hz, 100Hz, 200Hz, 500Hz, 4kHz, 8kHz, (10kHz and 12.5kHz) signals. Then, playback the signals and check if the curve is within the limits shown in the overall frequency response chart for CrO₂ tapes (fig. 14).
8. Change test tape to metal reference blank test tape (QZZCRZ), and record 1kHz, 50Hz, 100Hz, 200Hz, 500Hz, 4kHz, 8kHz, (10kHz and 12.5kHz) signals. Then, playback the signals and check if the curve is within the limits shown in the overall frequency response chart for metal tapes (fig. 14).
9. Confirm that bias currents are approximately as follows when the UNIT is set at different tape mode.

- Measure the voltage across the head using a EVM.

around 8V (Normal position)
Reference value: around 10V (CrO₂ position)
around 15V (Metal position)

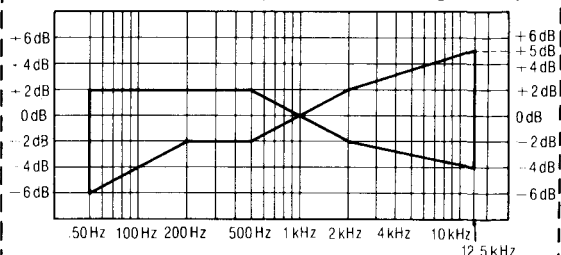
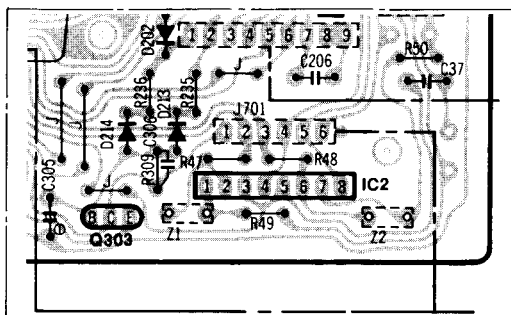
Overall frequency response chart (CrO₂, Metal)

Fig. 14

■ CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM

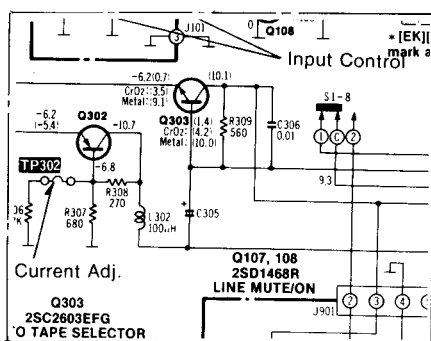
(Type-A)

(DIFFERENCE)

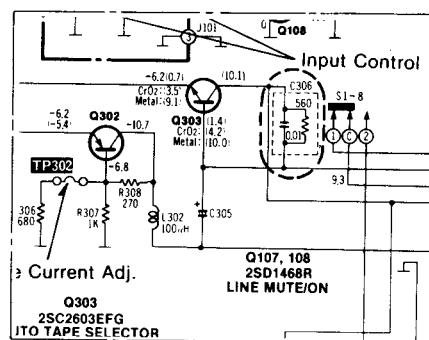


■ SCHEMATIC DIAGRAM

(DIFFERENCE)



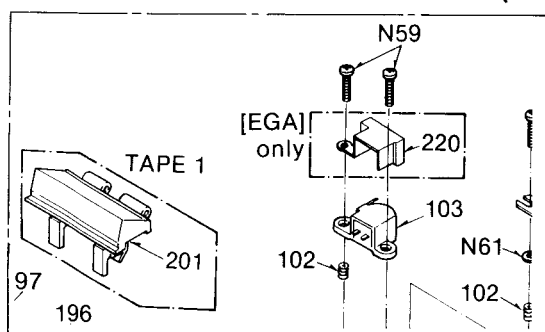
Former Type



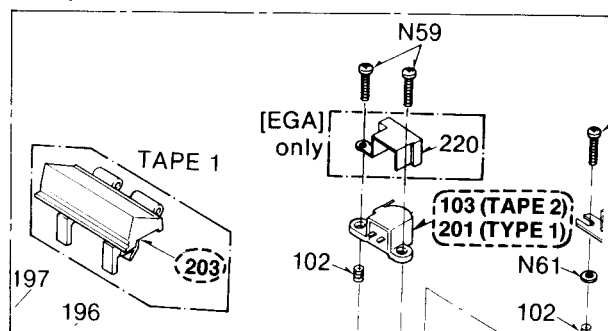
New Type

■ MECHANICAL PARTS LOCATION

(CORRECTION)

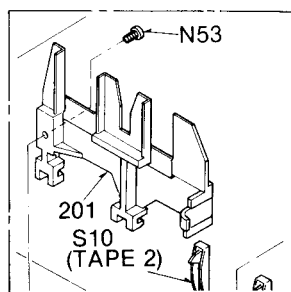


Former Type

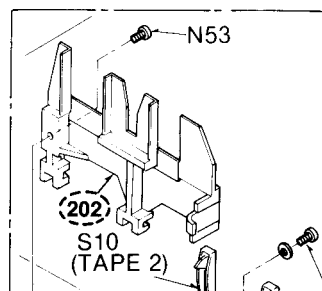


New Type

(CORRECTION)



Former Type



New Type

Cassette Deck

DEUTSCH

Verwenden Sie bitte diese Broschüre Zusammen mit der Service-Anleitung für das Modell Nr. RS-D550W.

■ TECHNISCHE DATEN

System	Stereo-Cassettendeck
Spuren	4 Spuren, 2 Kanäle
Tonköpfe (TAPE 1) Wiedergabe	MX-Kopf
(TAPE 2) Aufnahme/Wiedergabe	MX-Kopf
Löschen	Ferrit-Kopf mit Doppelspalt
Motoren	
(TAPE 1) Capstan/Spulentellerantrieb	1-Motor
(TAPE 2) Capstan/Spulentellerantrieb	1-Motor
Aufnahmesystem	Wechselstrom-Vormagnetisierung
Vormagnetisierungsfrequenz	80 kHz
Löschesystem	Wechselstrom-Vormagnetisierung
Bandgeschwindigkeit	4,8 cm/s
Frequenzgang	
Reineisenbänder	20 Hz~17.000 Hz
	30 Hz~16.000 Hz (DIN)
	40 Hz~15.000 Hz±3 dB
CrO₂-Bänder	20 Hz~16.000 Hz
	30 Hz~15.000 Hz (DIN)
	40 Hz~14.000 Hz±3 dB
Normalbänder	20 Hz~15.000 Hz
	30 Hz~14.000 Hz (DIN)
	40 Hz~14.000 Hz±3 dB

Dynamischer Bereich**Geräuschspannungsabstand:**(Signalpegel = max. Aussteuerungspegel, CrO₂-Band)**mit Dolby-B-Rauschunterdrückung** 66 dB (CCIR)**ohne Rauschunterdrückung** 56 dB (nach A bewertet)**Gleichlaufschwankungen** 0,08% (WRMS)

±0,16% (DIN)

Umspulzeit ca. 110 s für C-60-Cassette**Eingangsempfindlichkeit und Impedanz****LINE** 60 mV/47 kΩ**Ausgangsspannung und Impedanz****LINE** 400 mV/1,5 kΩ**HEADPHONES** 80 mV/8 Ω**Stromanfrahme** 12 W**Stromversorgung**

Netz 50 Hz/60 Hz, 220 V für Europa außer England,

240 V für England,

110 V/127 V/220 V/240 V für Ausländer

Abmessungen (B×H×T)

430×114×229 mm

Gewicht

3,5 kg

■ MESSUNGEN UND EINSTELL METHODEN

Anm.: Wenn nicht anders vorgeschrieben, Drehschalter und Steuereinrichtungen auf die folgenden Positionen stellen.

- Für saubere Köpfe sorgen.
- Für saubere Tonwelle und Andruckrolle sorgen.
- Auf normale Raumtemperatur achten: 20±5°C (68±9°F)
- Dolby-Schalter: AUS
- Eingangsregler: MAX

A Senkrechtstellen des Kopfes
(BAND [1], BAND [2])

Bedingung:
• Wiedergabe

Meßgerät:

- Elektronische Voltmeter
- Oszillograph
- Testband (azimuth)... QZZCFM

Ausgangsbalance-Justierung für linken und rechten Kanal

1. Den Meßaufbau zeigt Fig. 2.

2. 8 kHz-Signal des Testbandes (QZZCFM) wiedergeben.

Schraube (B) in Fig. 3 auf maximalen Ausgangspegel des linken und rechten Kanals abgleichen.

Sind die Ausgangspegel des linken und rechten Kanals nicht gleichzeitig maximal, wie folgt justieren:

3. Durch Drehen der in Fig. 3 gezeigten Schraube (B) die Winkel A und C (Punkte, wo Spitzenausgangspegel für den linken und rechten Kanal erreicht werden) ermitteln. Anschließend den Winkel B zwischen dem Winkel A und C ermitteln, d.h. den Punkt, wo die Ausgangspegel des linken und rechten Kanals ausbalanciert (ausgeglichen) sind. (Siehe Fig. 3 und 4.)

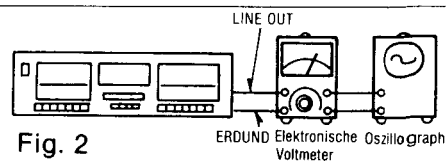


Fig. 2

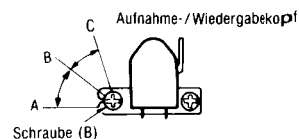


Fig. 3

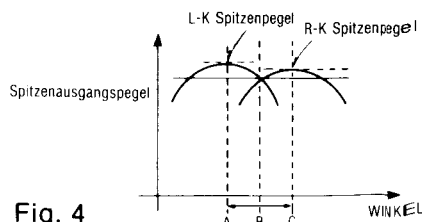


Fig. 4

Phasenjustierung für linken und rechten Kanal

- Den Meßaufbau zeigt Fig. 5.
- 8kHz-Signal des Testbandes (QZZCFM) wiedergeben.
- Schraube (B), wie in Fig. 3 gezeigt, so einstellen, daß Zeiger von zwei Röhrevoltmeter auf Maximum ausschlagen und am Oszillographen eine Wellenform wie in Fig. 6 erreicht wird.

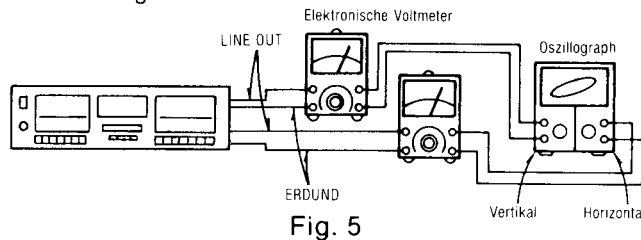


Fig. 5

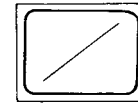


Fig. 6

Bandgeschwindigkeit (BAND [1], BAND [2])

Bedingung:
• Wiedergabe

Meßgerät:
• Elektronischer Digitalzähler
• Testband...QZZCWAT

Genauigkeit der Bandgeschwindigkeit

- Den Meßaufbau zeigt Fig. 7.
- Testband (QZZCWAT 3000Hz) wiedergeben und Ausgangssignal dem Zähler zuführen.
- Frequenz messen.
- Beträgt die auf dem Testband aufgezeichnete Frequenz 3000Hz, so ergibt sich die Genauigkeit nach folgender Formel:

$$\text{Genauigkeit der Bandgeschwindigkeit} = \frac{f - 3000}{3000} \times 100(\%)$$

worin f die gemessene Frequenz ist.

- Die Messung soll im mittleren Teil des Bandes erfolgen.

NORMALWERT: BAND [1] 0,7% (3010±20Hz)
BAND [2] (BAND [1]–15)±15Hz

- Falls der Meßwert nicht im vorgeschriebenen Bereich liegt, bitte mit Bandgeschwindigkeitsregler VR wie in Fig. 1 gezeigt einstellen.

Anmerkung: Bitte bei dieser Einheit zum Justieren der Bandgeschwindigkeit keinen Metallschraubenzieher benutzen.

Schwankung der Bandgeschwindigkeit:

Messung, wie oben beschrieben für Anfang, mittleren Teil und Ende des Testbandes wiederholen und Schwankung wie folgt bestimmen:

$$\text{Schwankung} = \frac{f_1 - f_2}{3000} \times 100(\%)$$

f_1 = Maximalwert

f_2 = Minimalwert

NORMALWERT: 1%

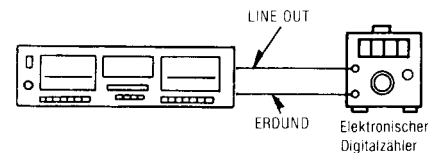


Fig. 7

Frequenzgang bei Wiedergabe (BAND [1], BAND [2])

Bedingung:
• Wiedergabe

Meßgerät:
• Elektronische Voltmeter
• Oszillograph
• Testband...QZZCFM

- Den Meßaufbau zeigt Fig. 2.
- Gerät auf Wiedergabe schalten. Frequenzgang-Testband QZZCFM wiedergeben.
- Ausgangsspannung bei 315Hz, 12,5kHz, 8kHz, 1kHz, 250Hz, 125Hz und 63Hz messen und jede Ausgangsspannung mit der Standardfrequenz 315Hz an der LINE OUT vergleichen.
- Messungen an beiden Kanälen durchführen.
- Prüfen, ob die gemessenen Werte innerhalb des in der Frequenzgang-Übersicht aufgeführten Bereichs liegen. (Siehe Fig. 8.)

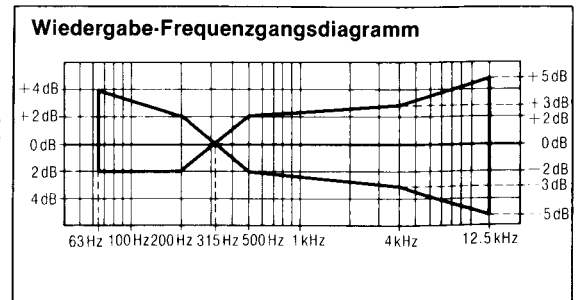


Fig. 8

⑤ **Wiedergabe-
Verstärkung**
(BAND [1], BAND [2])

Bedingung:
• Wiedergabe

Meßgerät:
• Elektronische Voltmeter
• Oszillograph
• Testband...QZZCFM

1. Den meßaufbau zeigt Fig. 2.
2. Den Standard-Aufnahmepegelteil der Testbandcassette (QZZCFM, 315Hz) wiedergeben und mit dem Elektronische Voltmeter den Ausgangspegel an den LINE OUT-Anschlüssen messen.
3. Messung an beiden Kanälen durchführen.

NORMALWERT: $0,4V \pm 0,5dB$ ($0,02V$)

Einstellung:

1. Abweichungen können durch Abgleich von BAND [1] VR103 (linker Kanal) und VR104 (rechter Kanal), BAND [2] VR1 (linker Kanal) und VR2 (rechter Kanal) korrigiert werden.
2. Nach erfolgtem Abgleich ist der Frequenzgang bei Wiedergabe erneut zu kontrollieren.

⑥ **Löschstrom**
(BAND [2])

Bedingung:
• Aufnahme

Meßgerät:
• Elektronische Voltmeter
• Oszillograph

1. Den Meßaufbau zeigt Fig. 9.
2. Die Aufnahme-und Pausentaste drücken.
3. Das Metallband-Referenzleerband (QZZCRZ) einsetzen.
4. Löschstrom nach folgender Formel ermitteln:

$$\text{Löschstrom (A)} = \frac{\text{Die Spannung über beide Enden von R301}}{1 \text{ (Ohm)}}$$

NORMALWERT: $155 \pm \frac{20}{5} \text{ mA}$ (Metal position) ($155 \pm \frac{20}{5} \text{ mV}$)

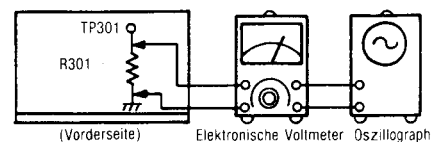


Fig. 9

5. Falls der Meßwert nicht im vorgeschriebenen Bereich liegt, auf folgenden Weise einstellen.

Einstellung:

- Beträgt der Löschstrom mehr als 150mA, unterbrechen Sie den Schaltdraht TP302.

⑦ **Gesamtfrequenzgang**
(BAND [2])

Bedingung:
• Aufnahme und Wiedergabe
• Eingangsregler...MAX

Meßgerät:
• Elektronische Voltmeter
• NF-Generator
• Abschwächer
• Oszillograph
• Testband (Leerband)
...QZZCRA für Normal
...QZZCRX für CrO₂
...QZZCRZ für Metall
• Widerstand (600Ω)

Anm.:

Vor Messung und Abgleich des Gesamtfrequenzganges ist sicherzustellen, daß der Frequenzgang bei Wiedergabe korrekt ist (Vgl. entspr. Abschnitt).

Gesamtfrequenzgang-Justierung durch Aufnahme-Vomagnetisierungsstrom

(Der Aufnahme-Entzerrer ist fest eingestellt.)

1. Den Meßaufbau zeigt Fig. 11.
2. Das Normalband-Referenzleerband (QZZCRZ) einsetzen.
3. An LINE IN ein Signal von 1kHz, -24dB zuführen. Das Gerät auf Aufnahme schalten.
4. Den Dämpfungswiderstand feineinstellen, bis die Ausgangsleistung an LINE OUT 0,4V beträgt.
• Überprüfen, daß der Signalausgangspegel bei einer Ausgangs-Spannung von $0,4V - 24 \pm 4dB$ beträgt.
5. Mit dem NF-Oszillator Signale von 50Hz, 100Hz, 200Hz, 500Hz, 1kHz, 4kHz, 8kHz und 10kHz zuführen, und diese Signale auf das Testband aufzeichnen.

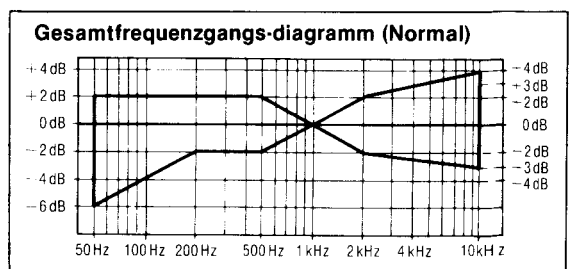


Fig. 10

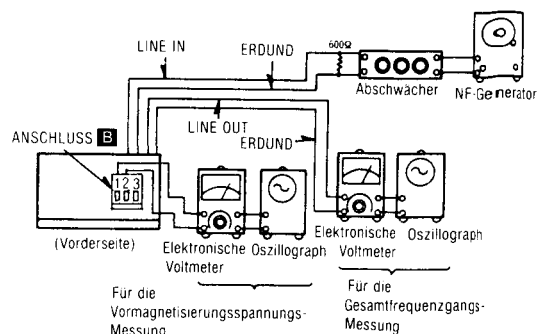


Fig. 11

6. Die in Schritt 5 aufgezeichneten Signale wiedergeben und überprüfen, ob die Frequenzgangkurve innerhalb des Bereichs liegt, der im Frequenzgangdiagramm für normales Band in Fig. 10 gezeigt ist. (Falls die Kurve innerhalb des vorgeschriebenen Bereichs liegt, mit den Schritten 7, 8 und 9 weiterfahren.)
Falls die Kurve außerhalb des vorgeschriebenen Bereichs liegt, wie folgt justieren.

Justierung (A):

Wenn die Kurve den vorgeschriebenen Gesamtfrequenzgangbereich (Fig. 10) überschreitet, wie in Fig. 12 gezeigt.

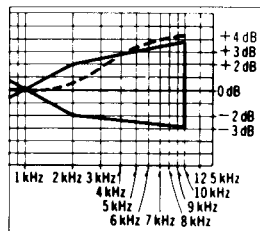


Fig. 12

- 1) Den Votmagnetisierungsstrom durch Abgleichen von VR301 (linker Kanal) und VR302 (rechter Kanal) erhöhen.

- 2) Die Schritte 5 und 6 zur Überprüfung wiederholen. (Wenn die Kurve dabei innerhalb des vorgeschriebenen Bereichs liegt (Fig. 10) mit den Schritten 7, 8, und 9 weiterfahren.)
- 3) Wenn die Kurve den vorgeschriebenen Bereich (Fig. 10) noch immer überschreitet, den Votmagnetisierungsstrom weiter erhöhen, und die Schritte 5 und 6 wiederholen.

Justierung (B):

Wenn die Kurve unter den vorgeschriebenen Bereich für den Gesamtfrequenzgang (Fig. 10) absinkt, wie in Fig. 13 gezeigt:

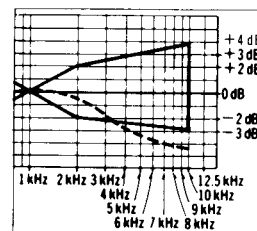


Fig. 13

- 1) Den Votmagnetisierungsstrom durch abgleichen von VR301 (linker Kanal) und VR302 (rechter Kanal) reduzieren.

- 2) Die Schritte 5 und 6 zur Überprüfung wiederholen. (Falls die Kurve dabei innerhalb des vorgeschriebenen Bereichs in Fig. 10 liegt, mit den Schritten 7, 8, und 9 weiterfahren.)
- 3) Falls die Kurve noch immer unter den vorgeschriebenen Bereich (Fig. 10) absinkt, den Votmagnetisierungsstrom weiter reduzieren, und Schritte 5 und 6 wiederholen.

7. Testband QZZCRX einlegen, und Signale von 50 Hz, 100 Hz, 200 Hz, 500 Hz, 1 kHz, 4 kHz, 8 kHz, 10 kHz und 12,5 kHz aufzeichnen; Anschliessend die Signale wiedergeben und prüfen, ob die Kurve innerhalb des Bereichs liegt, der im Gesamtfrequenzgang-Diagramm für das CrO₂ Band dargestellt ist. (Fig. 14.)
8. Testband QZZCRZ einlegen und Signale von 50 Hz, 100 Hz, 200 Hz, 500 Hz, 1 kHz, 4 kHz, 8 kHz, 10 kHz und 12,5 kHz aufnehmen. Anschliessend die Signale wiedergeben und prüfen, ob die Kurve innerhalb des Bereichs im Gesamtfrequenzgangdiagramm für Metallband liegt. (Fig. 14.)
9. Überprüfen, daß die Vorspannung ungefähr den folgenden Werten entsprechen, wenn der Bandsortenschalter in die entsprechende Position gestellt ist.

- Messen Sie die Spannung über dem Kopf mit einem Röhren voltmeter.

Ungefähr 8V (Normal position)
Bezugswert: Ungefähr 10V (CrO₂ position)
Ungefähr 15V (Metall position)

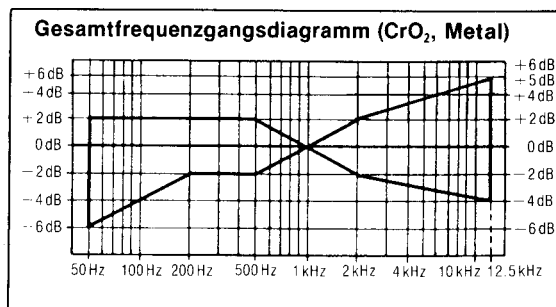


Fig. 14

⑥ Gesamtverstärkung (BAND [2])

Bedingung:

- Aufnahme und Wiedergabe
- Eingangsregler: MAX
- Standard-Eingangspegel:
NF-Eingang -24 ± 4 dB (63 mV)

Meßgerät:

- Elektronische Voltmeter
- NF-Generator
- Abschwächer
- Oszillograph
- Widerstand (600Ω)
- Testband (Leerband)
... QZZCRA für Normal

1. Den Meßaufbau zeigt Fig. 15.
2. Normales Testleerband (QZZCRA) einlegen.
3. Gerät auf "Aufnahme" schalten.
4. Über den Abschwächer ein 1 kHz-Signal (-24 dB) vom NF-Generator dem NF-Eingang zuführen.
5. ATT justieren, bis der Monitorpegel an den LINE OUT-Anschlüssen 0,4 V beträgt.
6. Eine bespielte Cassette wiedergeben und überprüfen, ob der Ausgangspegel an den LINE OUT-Anschlüssen 0,4 V beträgt.
7. Wenn der gemessene Wert nicht 0,4 V erreicht, die folgenden VR abgleichen: VR3 (L-CH) oder VR4 (R-CH).
8. Ab Punkt 2 wiederholen.

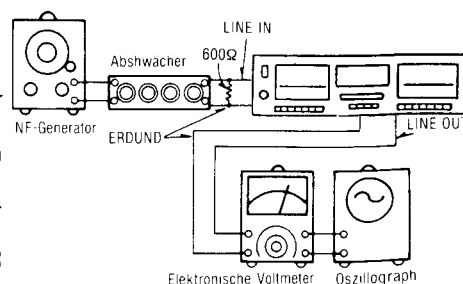


Fig. 15

⊕ Dolby-Schaltung

Bedingung:

- Aufnahme
- Eingangsregler...MAX

Meßgerät:

- Röhrenvoltmeter
- NF-Generator
- Abschwächer
- Oszillograph
- Widerstand (600Ω)

1. Den Meßaufbau zeigt Fig. 16.
2. Gerät auf "Aufnahme" stellen und Dolby-Schalter ausschalten. Dem NF-Eingang ein 5kHz-Signal zuführen, um an Nadel 7 (Linker Kanal) und Nadel 18 (Rechter Kanal) von IC401 17,5mV zu erhalten.
3. Prüfen, ob das Signal bei eingeschaltetem Dolby-Schalter um $8 (\pm 2,5)$ dB (728mV) größer ist als bei ausgeschaltetem Dolby-Schalter.

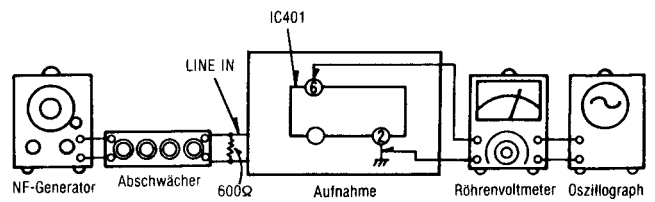


Fig. 16

FRANÇAIS

Ceci est à utiliser conjointement avec le manuel d'entretien du modèle No. RS-D550W.

CARACTERISTIQUES

Platine	Platine magnéto-cassette stéréo
Pistes	4 pistes, 2 canaux
Têtes	
(TAPE 1) LECTURE	Tête en MX
(TAPE 2) ENREGISTREMENT/LECTURE	Tête en MX
Effacement	Tête en ferrite à double entrefer
Moteurs	
(TAPE 1) Cabestan/Entrainement du tourne-disque	1-moteur
(TAPE 2) Cabestan/Entrainement du tourne-disque	1-moteur
Système d'enregistrement	Polarisation CA
Fréquence de polarisation	80kHz
Système d'effacement	Polarisation CA
Vitesse de défilement de la bande	4,8cm/sec.
Réponse en fréquence	
Métal	20Hz~17.000Hz 30Hz~16.000Hz (DIN) 40Hz~15.000Hz±3dB
CrO ₂	20Hz~16.000Hz 30Hz~15.000Hz (DIN) 40Hz~14.000Hz±3dB
Normal	20Hz~15.000Hz 30Hz~14.000Hz (DIN) 40Hz~14.000Hz±3dB

Rapport signal/bruit:

(niveau de signal = niveau d'enregistrement maximum, bande magnétique de type CrO₂)

Système de réduction de bruits Dolby B 66dB (CCIR)

Pas de système de réduction de bruits 56dB (A pondéré)

Pleurage et scintillement 0,08% (WRMS)
±0,16% (DIN)

Temps d'avance rapide et de rabobinage

Environ 110 secondes pour une cassette C-60

Sensibilité et impédance d'entrée

LIGNE 60mV/47kΩ

Tension et impédance de sortie

LIGNE 400mV/1,5kΩ

CASQUE D'ECOUTE

80mV/8Ω

Consommation

12W

Aimentation

AC 50Hz/60Hz 220V pour l'Europe

sauf la Grande Bretagne, 240V pour la Grande

Bretagne, 110V/127V/220V/240V, pour les autres pays.

Dimensions (L×H×P)

430×114×229mm

Poids

3,5kg

METHODES DES MEASURES ET REGLAGES

REMARQUES: Placer les interrupteurs et les contrôles dans les positions suivantes, sauf indication contraire.

- Vérifier que les têtes soient propres.
- Vérifier que le cabestan et le galet presseur soient propres.
- Température ambiante admissible: 20±5°C
- Interrupteur de réduction de bruit: OUT
- Contrôles de niveau d'entrée: Maximum

A Réglage de l'azimut de tête (BANDE [1], BANDE [2])

Condition:
• Mode de lecture

Equipement:

- Voltmètre électronique
- Oscilloscope
- Bande étalon (azimut) ...QZZCFM

Réglage de l'équilibre de la sortie au canal gauche/canal droit

1. Brancher les appareils comme indiqué dans la Fig. 2.

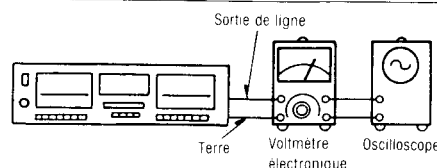


Fig. 2

2. Reproduire le signal de 8kHz de la bande étalon (QZZCFM).

Régler la vis (B) dans la Fig. 3 pour obtenir les niveaux de sortie maximum pour les canaux gauche et droit.

Lorsque les niveaux de sortie des canaux gauche et droit ne sont pas simultanément à leur maximum, les régler à nouveau de la façon suivante.

3. Faire tourner la vis indiquée dans la Fig. 3 pour trouver les angles A et C (point où les niveaux de sortie de crête pour les canaux gauche et droit sont obtenus respectivement). Situer alors l'angle B entre les angles A et C, autrement dit, en un point où les niveaux de sortie des canaux gauche et droit atteignent tous deux leur maximum. (Voir les Fig. 3 et 4).

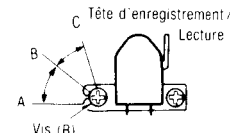


Fig. 3

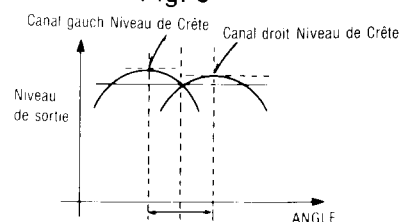


Fig. 4

Réglage (A):

Lorsque la courbe dépasse les spécifications du tableau de réponse de fréquence globale (Fig. 10), comme indiqué dans la Fig. 12.

- 1) Augmenter le courant de polarisation en tournant VR301 (canal gauche) et VR302 (canal droit).

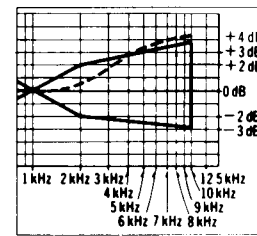


Fig. 12

- 2) Répéter les phases 5 et 6 pour confirmation. (Passer aux phases 7, 8 et 9 si la courbe est maintenant comprise dans les spécifications du tableau de la Fig. 10).
- 3) Si la courbe dépasse encore les spécifications (Fig. 10), augmenter encore le courant de polarisation et répéter les phases 5 et 6.

7. Enlever la bande étalon vierge normale et placer la bande étalon QZZCRX (bande CrO₂). Enregistrer les signaux de 50Hz, 100Hz, 200Hz, 500Hz, 1kHz, 4kHz, 8kHz, 10kHz et 12,5kHz. Reproduire ensuite ces signaux et vérifier si la courbe est comprise dans les limites indiquées par le tableau de réponse de fréquence globale pour les bandes CrO₂ (Fig. 14).

8. Changer la bande étalon pour la bande étalon vierge QZZCRZ (bande métallique), et enregistrer les signaux de 50Hz, 100Hz, 200Hz, 500Hz, 1kHz, 4kHz, 8kHz, 10kHz et 12,5kHz. Ensuite, lire les signaux et vérifier si la courbe se trouve entre les limites indiquées dans le tableau de réponse en fréquence globale pour les ruban CrO₂ (Fig. 14.).

9. Confirmer que les voltage de polarisation sont approximativement les suivants lorsque le sélecteur de bande est mis sur ses différentes positions.

- Mesurer la tension à la tête en utilisant un voltmètre électronique.

Autour de 8V (position: Normal)
Valeur référence: Autour de 10V (position: CrO₂)
Autour de 15V (position: Metal)

Réglage (B):

Lorsque la courbe tombe au-dessous des spécifications du tableau de fréquence globale (Fig. 10) comme indiqué dans la Fig. 13.

- 1) Réduire le courant de polarisation en tournant VR301 (canal gauche) et VR302 (canal droit).

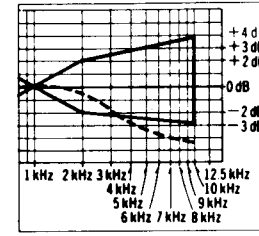


Fig. 13

- 2) Répéter les phases 5 et 6 pour confirmation. (Passer aux phases 7, 8 et 9 si la courbe est maintenant comprise dans les spécifications du tableau de la Fig. 10).

- 5) Si la courbe tombe encore au-dessous des spécifications du tableau (Fig. 10), réduire encore le courant de polarisation et répéter les phases 5 et 6.

Tableau de l'ensemble des réponses en fréquence (CrO₂, Metal)

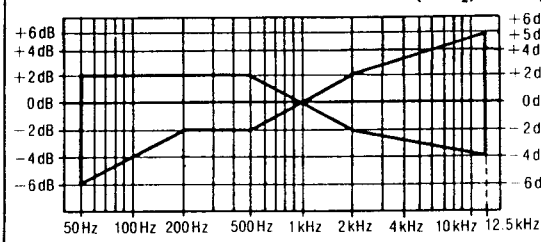


Fig. 14

⑥ Gain global (BANDE [2])

Condition:

- Mode d'enregistrement/lecture
- Contrôles de niveau d'entrée ...MAX

• Niveau d'entrée standard:

LINE IN -24±4dB (63mV)

Equipement:

- Voltmètre électronique
- Oscillateur AF
- Atténuateur
- Oscilloscope
- Résistance (600Ω)
- Bande étalon vierge...QZZCRA pour bande normale

1. Brancher les appareils comme indiqué dans la Fig. 15.
2. Introduire la bande étalon vierge (QZZCRA).
3. Placer l'UNITE en mode d'enregistrement.
4. Appliquer le signal de 1 kHz de l'oscillateur AF à la borne LINE IN, par l'intermédiaire de l'atténuateur (-24dB).
5. Régler ATT jusqu'à ce que le niveau du moniteur aux sorties de ligne soit de 0,4V.
6. Faire jouer la bande enregistrée et s'assurer que le niveau de sortie aux sorties en ligne soit de 0,4V.
7. Si la valeur mesurée n'est pas de 0,42V, régler au moyen de VR3 (canal gauche) ou VR4 (canal droit).
8. Recommencer à partir de la phase (2).

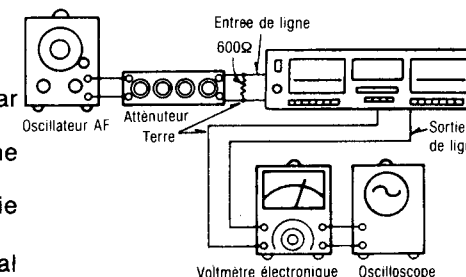


Fig. 15

⑦ Circuit de réduction de bruit Dolby

Condition:

- Mode d'enregistrement
- Contrôles de niveau d'entrée ...MAX

Equipement:

- Voltmètre électronique
- Oscillateur AF
- Atténuateur
- Oscilloscope
- Résistance (600Ω)

1. Brancher les appareils comme indiqué dans la Fig. 16.
2. Placer l'UNITE sur le mode d'enregistrement et régler l'interrupteur de réduction de bruit Dolby sur la position OUT. Appliquer un signal de 5kHz à la borne LINE IN afin d'obtenir 17,5mV à la pointe 7 (canal gauche) pointe 18 (canal droit) des IC401.
3. Vérifier que les valeurs à la pointe 6 (canal gauche) pointe 19 (canal droit) des IC401, lorsque l'interrupteur de réduction de bruit Dolby est sur la position IN, sont $\pm 8 (\pm 2,5) \text{dB}$ (728mV) plus élevées que les valeurs aux mêmes points lorsque l'interrupteur de réduction de bruit DOLBY est sur la position OUT.

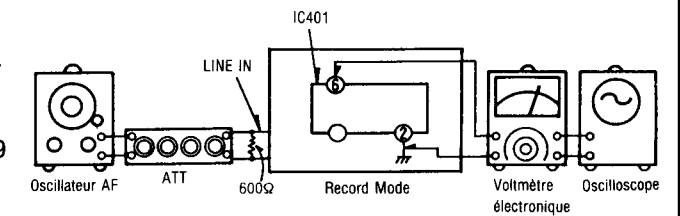


Fig. 16

Réglage de phase canal gauche/canal droit

- Brancher les appareils comme indiqué dans la Fig. 5.
- Reproduire le signal de 8kHz de la bande étalon (QZZCFM). Régler la vis (B) indiquée dans la Fig. 3 de sorte que les aiguilles des deux voltmètres électroniques oscillent au maximum, et qu'on obtienne sur l'oscilloscope une forme d'onde semblable à celle indiquée dans la Fig. 6.

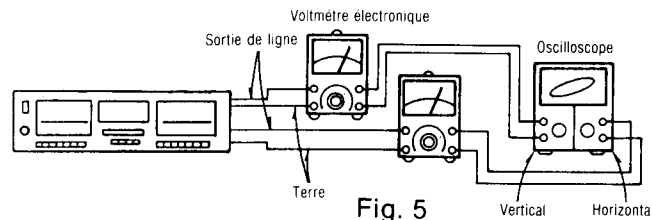


Fig. 5

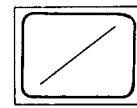


Fig. 6

③ Vitesse de défilement (BANDE [1], BANDE [2])

Condition:
• Mode de lecture

Equipement:
• Fréquence-mètre numérique
• Bande étalon...QZZCWAT

Précision de la vitesse de défilement

- Brancher les appareils comme indiqué dans la Fig. 7.
- Lire la bande étalon (QZZCWAT, 3000Hz) et appliquer le signal de lecture au fréquence-mètre numérique.
- Mesurer sa fréquence.
- Sur la base de 3000Hz, déterminer la valeur à l'aide de la formule.

$$\text{Précision de vitesse} = \frac{f - 3000}{3000} \times 100(\%)$$

avec f = valeur mesurée.

- Effectuer la mesure sur la partie médiane de la bande.

Valeur standard: BANDE [1] 0,7% (3010±20Hz)
BANDE [2] (BANDE [1]-15)±15Hz

- Si la valeur mesurée ne correspond pas à la valeur standard, régler au moyen de la vis VR de réglage de la vitesse de défilement indiquée.

Remarque: Utiliser un tournevis qui ne soit pas métallique pour le réglage de la précision de la vitesse de défilement sur cette unité.

Fluctuations de vitesse de défilement

Faire les mesures de la même façon que ci-dessus (au début, au milieu et en fin de bande) et déterminer la différence entre les valeurs maximale et minimale, puis calculer comme suit.

$$\text{Fluctuations de vitesse} = \frac{f_1 - f_2}{3000} \times 100(\%)$$

f₁ = valeur maximale
f₂ = valeur minimale

Valeur standard: 1%

④ Réponse en fréquence à la lecture (BANDE [1], BANDE [2])

Condition:
• Mode de lecture

Equipement:
• Voltmètre électronique
• Oscilloscope
• Bande étalon ...QZZCFM

- Brancher les appareils comme indiqué dans la Fig. 2.
- Lire la portion de réponse en fréquence de la bande étalon (QZZCFM).
- Mesurer les niveaux de sortie à 315Hz, 12,5kHz, 8kHz, 4kHz, 1kHz, 250Hz, 125Hz, et 63Hz et comparer chaque niveau de sortie avec celui de la fréquence standard de 315Hz sur la borne LINE OUT.
- Effectuer les mesures sur les deux canaux.
- Vérifier que les valeurs mesurées se situent dans la bande spécifiée de la courbe de réponse en fréquence. (Voir Fig. 8).

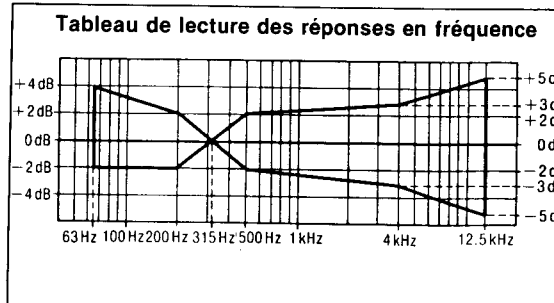


Fig. 8

⑤ Gain à la lecture (BANDE [1], BANDE [2])

Condition:
• Mode de lecture

Equipement:
• Voltmètre électronique
• Oscilloscope
• Bande étalon...QZZCFM

- Brancher les appareils comme indiqué dans la Fig. 2.
- Faire jouer la portion du niveau d'enregistrement normal sur la bande d'essai (QZZCFM, 315Hz) et, en utilisant un voltmètre électronique, mesurer le niveau de sortie aux sorties en ligne.
- Effectuer les mesures sur les deux canaux.

Valeur standard: 0,4V±0,5dB (0,02V)

Réglage

- Si la valeur mesurée ne correspond pas à la valeur standard régler BANDE [1] VR103 (canal gauche) ou VR104 (canal droit), BANDE [2] VR1 (canal gauche) ou VR2 (canal droit).
- Après réglage, vérifier à nouveau la "réponse en fréquence à la lecture".

⑥ Courant d'effacement (BANDE [2])

Condition:
• Mode d'enregistrement

Equipement:
• Voltmètre électronique
• Oscilloscope

- Brancher les appareils comme indiqué dans la Fig. 9.
- Insérer la bande d'essai vierge de référence métallisée (QZZCRZ).
- Appuyer sur les boutons d'enregistrement et de pause.
- Lire le voltage sur le voltmètre électronique et calculer le courant d'effacement au moyen de la formule suivante:

$$\text{Courant d'effacement (A)} = \frac{\text{Voltage à la résistance R301}}{1 (\Omega)}$$

Valeur standard: 155 ± 20 mA (bande métallique) (155 ± 20 mV)

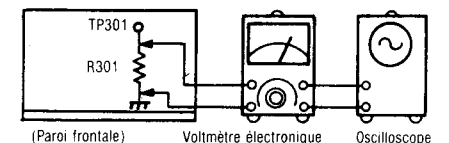


Fig. 9

- Si la valeur mesurée ne correspond pas à la valeur standard, régler selon les instructions ci-après.

Réglage

- Si le courant d'effacement est supérieur à 150mA, couper le fil de connexion TP302.

⑦ Réponse de fréquence globale (BANDE [2])

Condition:
• Mode enregistrement/lecture
• Contrôles de niveau d'entrée...MAX

Equipement:
• Voltmètre électronique
• Atténuateur
• Oscillateur
• Oscilloscope
• Résistance (600Ω)
• Bande étalon vierge
...QZZCRA pour bande normale
...QZZCRX pour bande CrO₂
...QZZCRZ pour bande métallique

Remarque:

Avant de mesurer et régler la réponse de fréquence globale vérifier que la réponse en fréquence à la lecture soit correcte (pout la méthode de mesure, se reporter au paragraphe intitulé "Réponse en fréquence à la lecture"). (Le compensateur d'enregistrement est fixe.)

- Brancher les appareils comme indiqué dans la Fig. 11.
- Introduire la bande étalon vierge normale (QZZCRA).
- Appliquer le signal de 1kHz de l'oscillateur AF à la borne LINE IN, par l'intermédiaire de l'atténuateur.
- Régler l'atténuateur de sorte que le niveau d'entrée soit de 20dB en-dessous du niveau d'enregistrement standard (niveau d'enregistrement standard = 0VU).
- Régler l'oscillateur AF pour produire des signaux de 50Hz 100Hz, 200Hz, 500Hz, 1kHz, 4kHz, 8kHz et 10kHz et enregistrer ces signaux sur la bande étalon.
- Reproduire les signaux enregistrés dans la phase 6, et vérifier si la courbe de réponse de fréquence se trouve dans les limites indiquées par la courbe de réponse de fréquence globale pour bandes normales (Fig. 10). (Si la courbe est comprise dans les spécifications, passer aux phases 7, 8 et 9). Si la courbe ne correspond pas aux spécifications du tableau, régler comme suit.

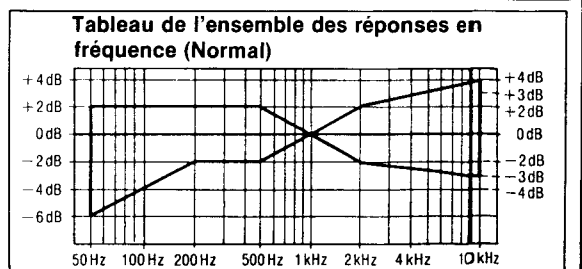


Fig. 10

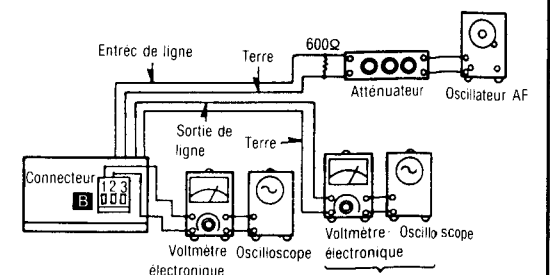
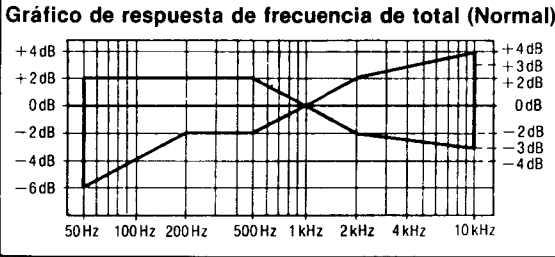
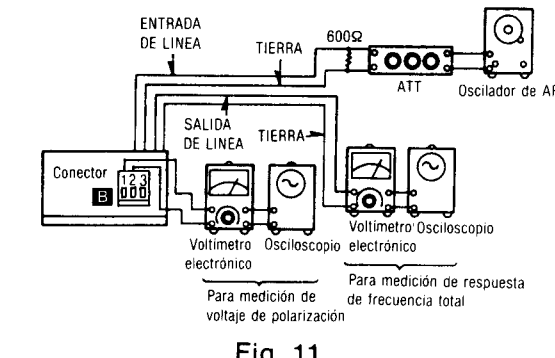
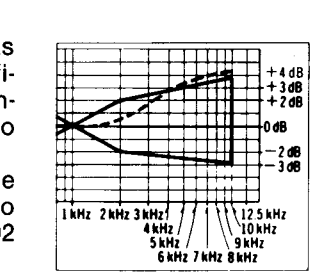
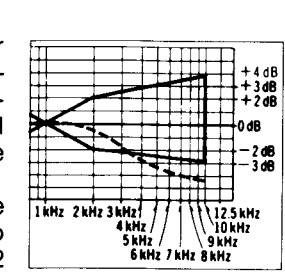
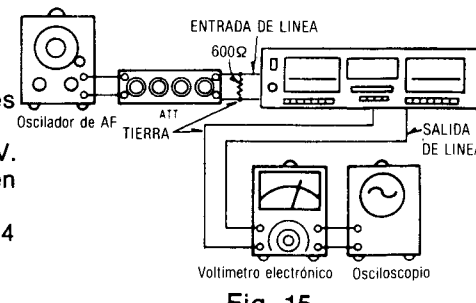


Fig. 11

① Ganancia de reproducción (CINTA [1], CINTA [2])	Condición: • Modo de reproducción	Equipo: • EVM (Voltímetro electrónico) • Osciloscopio • Cinta de prueba...QZZCFM
1. La conexión del equipo de prueba se muestra en la Fig. 2. 2. Reproduzca la porción de nivel de grabación estándar en la cinta de prueba (QZZCFM 315Hz) y, usando EVM (voltímetro electrónico), mida el nivel de salida en "LINE OUTs" (salidas de línea). 3. Efectuar las medidas para ambos canales.		
Valor normal: 0,4V±0,5dB (0,02V)		
Ajuste 1. Si el valor medido no está comprendido dentro del valor normal, ajustar CINTA [1] [VR103 (L-CH), VR104 (R-CH)], CINTA [2] [VR1 (L-CH), VR2 (R-CH)]. 2. Después del ajuste, comprobar de nuevo la "respuesta de frecuencia de reproducción".		
② Corriente de borrado (CINTA [2])	Condición: • Modo de grabación	Equipo: • EVM (Voltímetro electrónico) • Osciloscopio
1. La conexión del equipo de prueba se muestra en la Fig. 9. 2. Insertar la cinta de prueba virgen de referencia metálica (QZZCRZ). 3. Apretar los botones de pausa y grabación. 4. Tomar la lectura del voltaje en EVM y calcular la corriente de borrado mediante la fórmula siguiente:		
$\text{Corriente de borrado (A)} = \frac{\text{Voltaje entre terminales de R301}}{1 (\Omega)}$		
Valor normal: 155 ± 20 mA (Mode de cinta...Metal) (155 ± 20 mA)		
5. Si el valor medido no está comprendido dentro del valor normal, ajustar de la forma siguiente:		
Ajuste • Si la corriente de borrado es mayor que 150mA, cortar el hilo del puente TP302.		
③ Respuesta de frecuencia total (CINTA [2])	Condición: • Modo de reproducción/grabación • Control de nivel de entrada...MAX	Equipo: • EVM (Voltímetro electrónico) • ATT • Oscilador de AF • Osciloscopio • Resistor (600Ω) • Cinta de prueba (cinta en blanco de referencia) ...QZZCRA para Normal ...QZZCRX para CrO ₂ ...QZZCRZ para Metal
Nota: Antes de medir y ajustar la respuesta de frecuencia total, asegurarse de la respuesta de frecuencia de reproducción. (Para el método de medida, sírvase consultar la respuesta de frecuencia de reproducción). (Se fija el compensador de grabación.)		
1. Efectuar las conexiones tal como se muestra en la Fig. 11. 2. Cargar la cinta de prueba (QZZCRA). 3. Aplicar una señal de 1kHz desde el oscilador de AF a través de ATT a LINE IN. 4. Ajustar el ATT de forma que el nivel de entrada sea de -20dB por debajo del nivel estándar de grabación (nivel estándar de grabación = 0VU). 5. Ajustar el oscilador de AF para generar señales de 50Hz, 100Hz, 200Hz, 500Hz, 1kHz, 4kHz, 8kHz y 10kHz y grabar, estas señales en la cinta de prueba. 6. Reproducir las señales grabadas en el paso 6, y comprobar si la curva de respuesta de frecuencia está dentro de los límites mostrados en el gráfico de respuesta de frecuencia total para las cintas normales (Fig. 10). (Si la curva está dentro de las especificaciones del gráfico, seguir con los pasos 7, 8 y 9). Si la curva no está dentro de las especificaciones del gráfico, ajustar de la forma siguiente:		
 Fig. 10		
 Fig. 11		

Ajuste A: Cuando la curva excede las especificaciones del gráfico de respuesta de frecuencia total (Fig. 10) tal como se muestra en la Fig. 12.		Ajuste B: Cuando la curva está por debajo de las especificaciones del gráfico de respuesta de frecuencia total (Fig. 10) tal como se muestra en la Fig. 13.	
1) Aumentar la corriente de polarización girando VR301 (L-CH) y, VR302 (R-CH).			
2) Repetir los pasos 5 y 6 para confirmación. (Seguir con los pasos 7, 8 y 9 si la curva está ahora dentro de las especificaciones del gráfico de la Fig. 10).			
3) Si la curva todavía excede las especificaciones (Fig. 10), aumentar aún más la corriente de polarización y repetir los pasos 5 y 6.			
7. Cambiar la cinta de prueba a QZZCRX y grabar señales de 50Hz, 100Hz, 200Hz, 500Hz, 1kHz, 4kHz, 8kHz, 10kHz y 12,5kHz. Luego, reproducir las señales y comprobar si la curva está dentro de los límites mostrados en el gráfico de respuesta de frecuencia total para las cintas CrO ₂ (Fig. 14).			
8. Cambiar la cinta de prueba a QZZCRZ, y grabar señales de 50Hz, 100Hz, 200Hz, 500Hz, 1kHz, 4kHz, 8kHz, 10kHz y 12,5kHz. Luego, reproducir las señales y comprobar si la curva está dentro de los límites mostrados en el gráfico de respuesta de frecuencia total para las cintas de Metal (Fig. 14).			
9. Asegurarse de que las tensión de polarización sean aproximadamente las que se indican a continuación cuando el aparato esté colocado en un modo de cinta distinto. • Medir la tensión en la cabeza utilizando el EVM.			
Unos 8V (posición Normal) Valor de referencia: Unos 10V (posición CrO₂) Unos 15V (posición Metal)			
④ Ganancia total (CINTA [2])	Condición: • Modo de reproducción/grabación • Controles del nivel de entrada...MAX. • Nivel de entrada normal: LINE IN-24±4dB (63mV)	Equipo: • EVM (Voltímetro electrónico) • Oscilador de AF • ATT • Osciloscopio • Resistor (600Ω) • Cinta de prueba (cinta en blanco de referencia) ...QZZCRA para Normal	
1. La conexión del equipo de prueba se muestra en la Fig. 15. 2. Cargar la cinta normal en blanco de referencia (QZZCRA). 3. Poner el aparato en el modo grabación. 4. Suministrar una señal 1kHz (-24dB) desde el oscilador de AF a través de ATT a LINE IN (ENTRADA DE LINEA). 5. Ajustar ATT hasta que el nivel del monitor en "LINE OUTs" sea 0,4V. 6. Reproduzca la cinta grabada y asegúrese de que el nivel de salida en "LINE OUTs" sea 0,4V. 7. Si el valor medido no es de 0,42V, ajustarlo con VR3 (L-CH), VR4 (R-CH). 8. Repetir desde el punto (2).			
 Fig. 15			

ESPAÑOL

Sírvase utilizarse junto con manual de servicio para el model No. RS-D550W.

■ ESPECIFICACIONES TECNICAS

Sistema de platina	Platina de cassette estéreo
Sistema de pistas	4 pistas, 2 canales
Cabezas (TAPE 1) de REPROD	Cabeza de MX
(TAPE 2) de GRAB/REPROD de borrado	Cabeza de MX
	Cabezas de ferrita de 2 entrehierros
Motores	
(TAPE 1) Sistema de tracción de cinta/cabestante	Motor de CC
(TAPE 2) Sistema de tracción de cinta/cabestante	Motor de CC
Sistema de grabación	Polarización de CA
Frecuencia de polarización	80kHz
Sistema de borrado	Polarización de CA
Velocidad de cinta	4,8cm/seg.
Respuesta de frecuencia	
Metal	20Hz~17.000Hz
	30Hz~16.000Hz (DIN)
	40Hz~15.000Hz±3dB
CrO ₂	20Hz~16.000Hz
	30Hz~15.000Hz (DIN)
	40Hz~14.000Hz±3dB

Normal	20Hz~15.000Hz
	30Hz~14.000Hz (DIN)
	40Hz~14.000Hz±3dB
Señal a ruido:	
(niveau de señal = nivel de grabación máx. tipo de cinta CrO ₂)	
con reducción de ruidos Dolby B	66dB (CCIR)
sin reducción de ruidos	56dB (promedio A)
Variación de velocidad	0,08% (WRMS) ±0,16% (DIN)
Tiempo de avance rápido y rebobinado	Approx. 110 segundos con cintas C-60
Sensibilidad de entrada e impedancia	
LINE	60mV/47kΩ
Voltaje de salida e impedancia	
LINE	400mV/1,5kΩ
HEADPHONES	80mV/8Ω
Consumo de corriente	12W
Alimentación de energía	CA 50Hz/60Hz,
	220V para Europe realizar Royaume-Uni,
	240V para Royaume-Uni,
	para otras áreas.
Dimensions (An.×Al×Prof.)	430×114×229mm
Peso	3,5kg

■ METODOS DE AJUSTE Y MEDIDA

- NOTAS:** Colocar los interruptores y controles en las posiciones siguientes a no ser que se especifique lo contrario:
- Asegurarse de que las cabezas estén limpias.
 - Asegurarse de que los cabrestantes y los rodillos presores estén limpios.
 - Temperatura ambiente aconsejable: 20±5°C (68±9°F)
 - Interruptor NR: OUT
 - Controles del nivel de entrada: Máximo

Ⓐ Ajuste de azimut de las cabezas (CINTA [1], CINTA [2])

Condición:
• Modo de reproducción

Equipo:
• EVM (Voltímetro electrónico)
• Osciloscopio
• Cinta de prueba (azimut)
...QZZCFM

Ajuste del equilibrio de salida L-CH/R-CH (canal izquierdo/canal derecho)

1. Efectuar las conexiones como muestra la Fig. 2.

2. Reproducir la señal de 8kHz desde la cinta de prueba (QZZCFM). Ajustar el tornillo (B) en Fig. 3 para obtener niveles L-CH y R-CH de salida máxima. Cuando los niveles de salida de L-CH y R-CH no están al máximo, al mismo tiempo, reajustar de la siguiente forma:
3. Girar el tornillo mostrado en Fig. 3 para buscar los ángulos A y C (puntos donde los niveles de salida de cresta se obtienen para los canales derecho y izquierdo). Luego, localizar el ángulo B entre los ángulos A y C, por ej., el punto donde los niveles de salida de R-CH y L-CH estén equilibrados. (Consultar Fig. 3 y 4.)

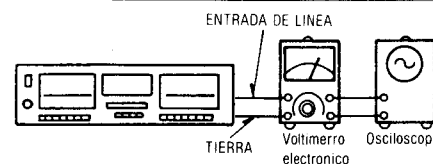


Fig. 2

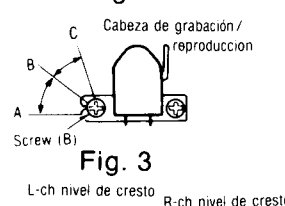


Fig. 3

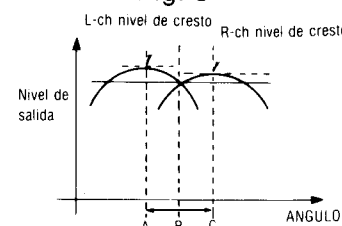


Fig. 4

Ajuste de fase de L-CH/R-CH

4. Efectuar las conexiones como muestra la Fig. 5.
5. Reproducir la señal de 8kHz desde la cinta de prueba (QZZCFM). Ajustar el tornillo (B) de la Fig. 3 de forma que las agujas indicadoras de los dos EVM giren hacia el máximo y se obtenga una forma de onda como la indicada en la Fig. 6 sobre el osciloscopio.

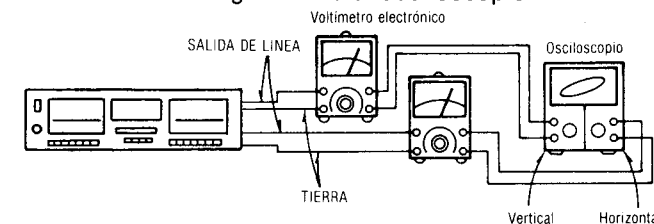


Fig. 5

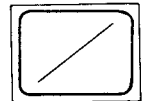


Fig. 6

Ⓑ Velocidad de la cinta (CINTA [1], CINTA [2])

Condición:
• Modo de reproducción

Equipo:
• Contador digital electrónico
• Cinta de prueba...QZZCWAT

Exactitud de la velocidad de cinta

1. La conexión del equipo de prueba se muestra en Fig. 7.
2. Reproducir la cinta de prueba (QZZCWAT 3.000Hz), y suministrar una señal de reproducción al contador digital electrónico.
3. Medir esta frecuencia.
4. Sobre la base de 3.000Hz, determinar el valor de la exactitud mediante la siguiente fórmula:

$$\text{Exactitud de la velocidad de cinta} = \frac{f - 3.000}{3.000} \times 100(\%)$$

donde f = valor medido

5. Tomar medida en la sección media de la cinta.

Valor normal: CINTA [1] 0,7% (3010±20Hz)
CINTA [2] (CINTA [1]-15)±15Hz

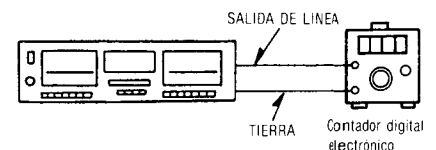


Fig. 7

6. Si el valor medido no está dentro del valor estándar, ajustarlo usando el ajuste de velocidad de cinta VR mostrado.

Nota: No utilizar destornilladores metálicos cuando ajuste la precisión de la velocidad de la cinta en este aparato.

Fluctuación de la velocidad de cinta

Efectuar las mediciones de la misma manera que antes (al comienzo, mitad y final de la cinta) y determinar la diferencia entre los valores máximo y mínimo. Calcular de la forma siguiente:

$$\text{Fluctuación de la velocidad de cinta} = \frac{f_1 - f_2}{3.000} \times 100(\%)$$

f₁ = valor máximo,
f₂ = valor mínimo

Valor normal: menos de 1%

Ⓒ Respuesta de frecuencia de reproducción (CINTA [1], CINTA [2])

Condición:
• Modo de reproducción

Equipo:
• EVM (Voltímetro electrónico)
• Osciloscopio
• Cinta de prueba...QZZCFM

1. La conexión del equipo de prueba se muestra en la Fig. 2.
2. Reproducir la cinta de prueba de respuesta de frecuencia (QZZCFM).
3. Medir el nivel de salida en 315Hz, 12,5kHz, 8kHz, 4kHz, 1kHz, 250Hz, 125Hz y 63Hz y comparar cada nivel de salida con 315Hz de frecuencia normal, en LINE OUT.
4. Efectuar las medidas para ambos canales.
5. Asegurarse de que el valor medido está comprendido dentro de la gama especificada en el gráfico de la respuesta de frecuencia (mostrado en la Fig. 8).

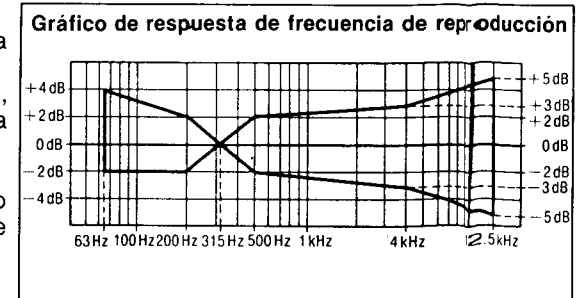


Fig. 8

⊕ **Circuito Dolby de reducción de ruido (NR)**

Condición

- Modo de grabación
- Controles del nivel de entrada ...MAX

Equipo:

- EVM
- Oscilador de AF
- ATT
- Osciloscopio
- Resistor (600Ω)

1. La conexión del equipo de prueba se muestra en la Fig. 16.
2. Colocar la UNIDAD en el modo de grabación. Colocar el interruptor NR en la posición OUT y suministrar una señal de 5kHz a LINE IN para obtener 17,5mV en el terminal 7 (L-CH) terminal 18 (R-CH) del IC401.
3. Confirmar que los valores en el terminal 6 (L-CH) terminal 19 (R-CH) del IC401 con el interruptor Dolby NR en la posición IN sena de 8 (±2,5)dB (728mV) mayores que los valores en la posición Dolby OUT del Interruptor NR.

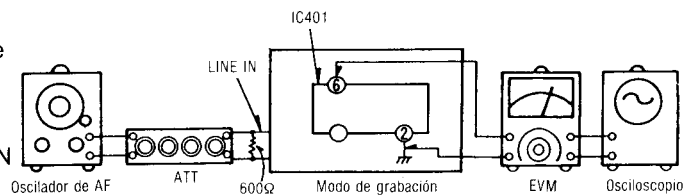


Fig. 16

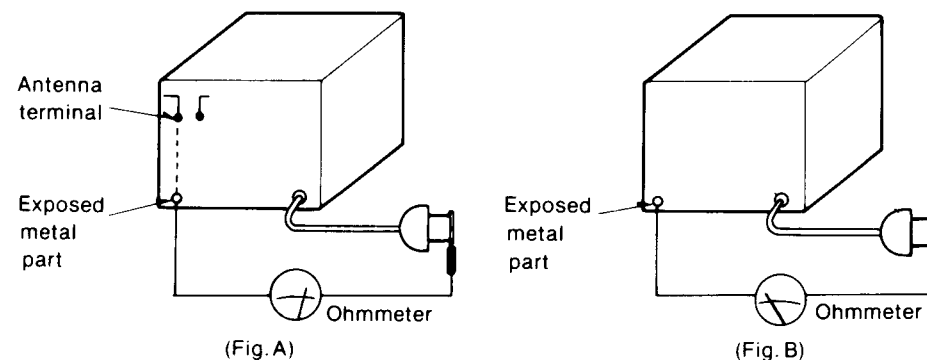
SAFETY PRECAUTION (This "safety precaution" is applied only in U.S.A.)

1. Before servicing, unplug the power cord to prevent an electric shock.
2. When replacing parts, use only manufacturer's recommended components for safety.
3. Check the condition of the power cord. Replace if wear or damage is evident.
4. After servicing, be sure to restore the lead dress, insulation barriers, insulation papers, shields, etc.
5. Before returning the serviced equipment to the customer, be sure to make the following insulation resistance test to prevent the customer from being exposed to a shock hazard.

INSULATION RESISTANCE TEST

1. Unplug the power cord and short the two prongs of the plug with a jumper wire.
2. Turn on the power switch.
3. Measure the resistance value with ohmmeter between the jumpered AC plug and each exposed metal cabinet part, such as screwheads antenna, control shafts, handle brackets, etc. Equipment with antenna terminals should read between $3M\Omega$ and $5.2M\Omega$ to all exposed parts. (Fig. A) Equipment without antenna terminals should read approximately infinity to all exposed parts. (Fig. B)

Note: Some exposed parts may be isolated from the chassis by design. These will read infinity.



Resistance = $3M\Omega - 5.2M\Omega$

Resistance = Approx ∞

4. If the measurement is outside the specified limits, there is a possibility of a shock hazard. The equipment should be repaired and rechecked before it is returned to the customer.

DISASSEMBLY INSTRUCTIONS

Ref. No. 1	How to remove the case cover	Ref. No. 2	How to remove the main P.C.B.
Procedure 1	Remove 4 screws (1-4).	Procedure 1 → 2	- Remove 5 screws (1-5). - Remove the earth plate. - Remove the power rod (see fig. 3). - Pull 2 tabs aside. - Pull the back chassis in the direction of arrow (A) and fell it in the direction of arrow (B).
Fig.1		Fig. 2	

Ref. No. 3	How to remove the front panel assembly	Ref. No. 5	How to remove the mechanism unit
Procedure 1 → 3	- Pull out the connectors (A), (B), (C), (D) and (E). - Remove flat cable J101, J201 and J701.	Procedure 1 → 5	- Remove the record/playback change lever (see fig. 3). - Remove 4 screws (1-4). - Remove 2 screws (5, 6) (TAPE 2). - Remove 2 screws (7, 8) (TAPE 1). - Remove the counter belt (TAPE 2). - Push the eject button (see fig. 1). - Draw out the mechanism unit until it is not in touch with the main P.C.B., and lift it in the direction of arrow (A). - Then draw out the bottom of mechanism unit in the direction of arrow (B). Subsequently, draw out the top of it in the direction of arrow (C). - After that, take out the mechanism unit in the direction of arrow (D).
Fig. 3		Fig. 5	
How to remove flat cable Open the lid of connector in the direction of the arrow as shown left-hand, and extract the flat cable to disconnect.		How to remove the LED meter P.C.B. - Remove 4 screws (1-4) (see fig. 5). - Remove one screw (1). - Raise tabs in the direction of arrow (A) and remove the LED meter P.C.B. in the direction of arrow (B). Fig. 6	
How to remove the volume P.C.B. - Remove 4 screws (1-4) (see fig. 5). - Remove 2 screws (2, 3) (see fig. 6). - Raise tabs in the direction of arrow (A) and remove the volume P.C.B. in the direction of arrow (B) (see fig. 6).		How to remove the volume P.C.B. Fig. 4	
Ref. No. 4	Procedure 1 → 4	How to remove the volume P.C.B. - Remove 4 screws (1-4) (see fig. 5). - Remove 2 screws (2, 3) (see fig. 6). - Raise tabs in the direction of arrow (A) and remove the volume P.C.B. in the direction of arrow (B) (see fig. 6).	

* Serial No. Indication

- The serial number plate of this product is attached to the back chassis (shown in fig. 2).

MEASUREMENTS AND ADJUSTMENTS

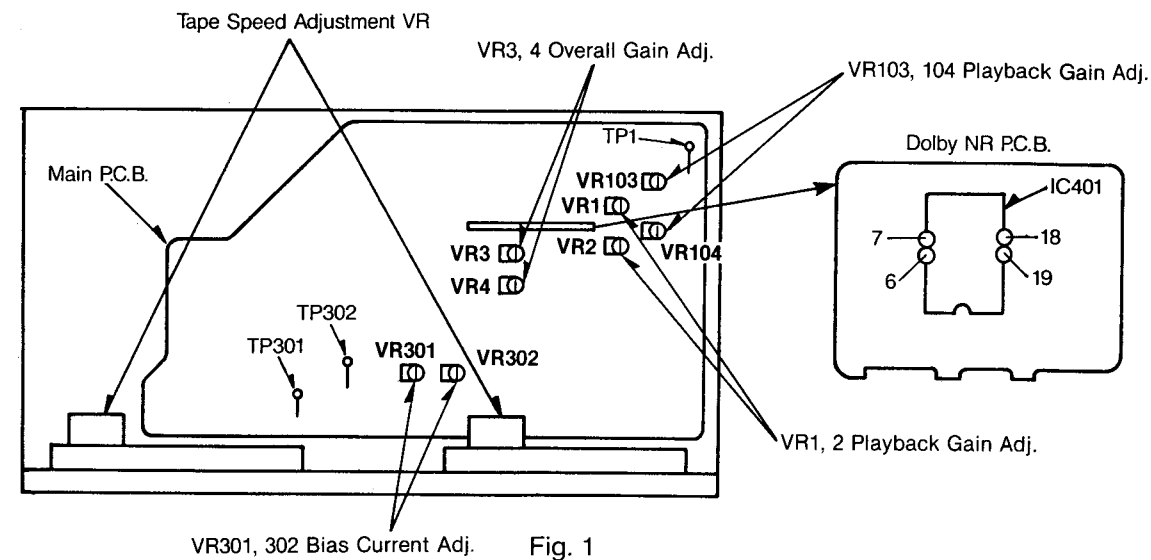


Fig. 1

NOTES: Set switches and controls in the following positions, unless otherwise specified.

- Make sure heads are clean
- Make sure capstan and pressure roller are clean
- Judgeable room temperature $20 \pm 5^\circ\text{C}$ ($68 \pm 9^\circ\text{F}$)
- Input level controls: Maximum
- Dolby NR switch: OUT

A Head azimuth adjustment (TAPE 1, TAPE 2)

Condition:
• Playback mode

Equipment:
• EVM (Electronic Voltmeter)
• Oscilloscope
• Test tape (azimuth)...QZZCFM

L-CH/R-CH output balance adjustment

1. Make connections as shown in fig. 2.

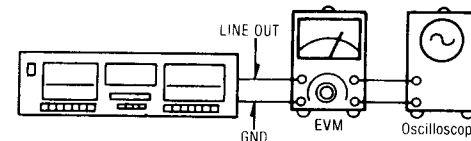


Fig. 2

2. Playback the 8kHz signal from the test tape (QZZCFM). Adjust screw (B) in fig. 3 for maximum output L-CH and R-CH levels. When the output levels of L-CH and R-CH are not at maximum at the same point adjust as follows.

3. Turn screw (B) shown in fig. 3 to find angles A and C (points where peak output levels for left and right channels are obtained). Then, locate angle B between angles A and C, i.e., point where L-CH and R-CH outputs are balanced. (Refer to figs. 3 and 4.)

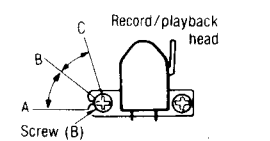


Fig. 3

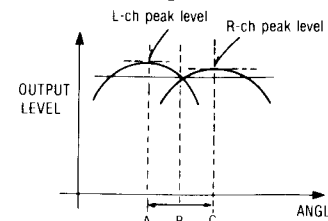


Fig. 4

L-CH/R-CH phase adjustment

4. Make connections as shown in fig. 5.

5. Playback the 8kHz signal from the test tape (QZZCFM). Adjust screw (B) shown in fig. 3 so that pointers of the two EVMs swing to maximum and a lissajous waveform as illustrated in fig. 6 is obtained on the oscilloscope.

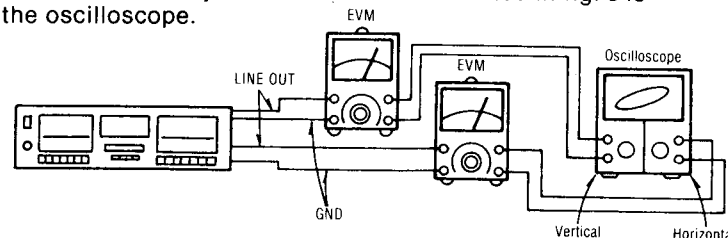


Fig. 5

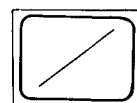


Fig. 6

E Tape speed (TAPE 1, TAPE 2)

Condition:
• Playback mode

Equipment:
• Digital frequency counter
• Test tape...QZZCWAT

Tape speed accuracy

1. Test equipment connection is shown in fig. 7.
2. Playback test tape (QZZCWAT 3,000Hz), and supply playback signal to the digital frequency counter.
3. Measure this frequency.
4. On the basis of 3,000Hz, determine value by following formula:

$$\text{Tape speed accuracy} = \frac{f - 3,000}{3,000} \times 100(\%) \quad \text{where, } f = \text{measured value}$$

5. Take measurement at middle section of tape.

Standard value: TAPE 1 $3010 \pm 20\text{Hz}$ [TAPE 2] $(\text{TAPE 1} - 15) \pm 15\text{Hz}$

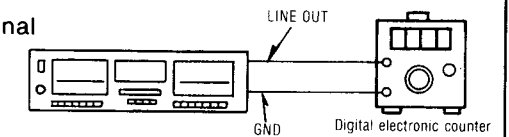


Fig. 7

6. If measured value is not within the standard value, adjust it by using the tape speed adjustment VR shown in fig. 1.

Note: Please use non metal type screwdriver when you adjust tape speed accuracy on this unit.

Tape speed fluctuation

Make measurements in same manner as above (beginning, middle and end of tape), and determine the difference between maximum and minimum values and calculate as follows:

$$\text{Tape speed fluctuation} = \frac{f_1 - f_2}{3,000} \times 100(\%) \quad f_1 = \text{maximum value, } f_2 = \text{minimum value}$$

Standard value: Less than 1%

G Playback frequency response (TAPE 1, TAPE 2)

Condition:
• Playback mode

Equipment:
• EVM (Electronic Voltmeter)
• Oscilloscope
• Test tape...QZZCFM

1. Test equipment connection is shown in fig. 2.
2. Playback the frequency response portion of test tape (QZZCFM).
3. Measure output level at 315Hz, 12.5kHz, 8kHz, 4kHz, 1kHz, 250Hz, 125Hz and 63Hz, and compare each output level with the standard frequency 315Hz, at LINE OUT.
4. Make measurements for both channels.
5. Make sure that the measured values are within the range specified in the frequency response chart (Shown in fig. 8).

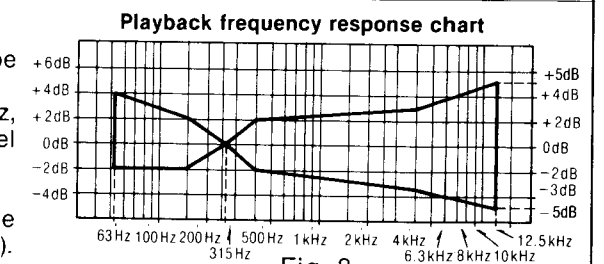


Fig. 8

D Playback gain (TAPE 1, TAPE 2)

Condition:
• Playback mode

Equipment:
• EVM (Electronic Voltmeter)
• Oscilloscope
• Test tape...QZZCFM

1. Test equipment connection is shown in fig. 2.
2. Playback standard recording level portion on test tape (QZZCFM 315Hz) and, using EVM, measure the output level at LINE OUTs.
3. Make measurements for both channels.

Standard value: $0.4V \pm 0.02V$

Adjustment

1. If the measured value is not within the standard, adjust TAPE 1 VR103 (L-CH) or VR104 (R-CH), Tape 2 VR1 (L-CH) or VR2 (R-CH) (See fig. 1).
2. After adjustment, check "Playback frequency response" again.

E Erase current (TAPE 2)

Condition:
• Record mode

Equipment:
• EVM (Electronic Voltmeter)
• Oscilloscope
• Test tape (reference blank tape) ...QZZCRZ for Metal

1. Test equipment connection is shown in fig. 9.
2. Insert the metal tape.
3. Press the record and pause buttons.
4. Read voltage on EVM and calculate erase current by following formula:

$$\text{Erase current (A)} = \frac{\text{Voltage across resistor R301}}{1 (\Omega)}$$

Standard value: $155 \pm 20 \text{ mA (Metal)}$ ($155 \pm 20 \text{ mV}$)

5. If the measured value is not within the standard value adjust it by following the adjustment instructions.

Adjustment

If the erase current is less than 150mA, cut the TP302 (See fig. 1).

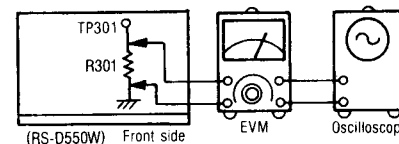


Fig. 9

Overall frequency response (TAPE [2])

Condition:
• Record/playback mode
• Input level controls...MAX

Equipment:
• EVM (Electronic Voltmeter)
• ATT
• AF oscillator
• Oscilloscope
• Resistor (600Ω)
• Test tape (reference blank tape)
...QZZCRA for Normal
...QZZCRX for CrO₂
...QZZCRZ for Metal

Note:

Before measuring and adjusting, the overall frequency response make sure of the playback frequency response (For the method of measurement, please refer to the playback frequency response).

(Recording equalizer is fixed)

1. Make connections as shown in fig. 11.
2. Insert the normal reference blank test tape (QZZCRA).
3. Supply a 1kHz signal from the AF oscillator through ATT to LINE IN.
4. Adjust ATT so that input level is -20dB below standard recording level (standard recording level = 0 VU).
5. Adjust the AF oscillator frequency to 1kHz, 50Hz, 100Hz, 200Hz, 500Hz, 4kHz, 8kHz, 10kHz and 12.5kHz signals, and record these signals on the test tape.
6. Playback the signals recorded in step 6, and check if the frequency response curve is within the limits shown in the overall frequency response chart for normal tapes (fig. 10). (If the curve is within the charted specifications, proceed to steps 7, 8 and 9.) If the curve is not within the charted specifications, adjust as follows;

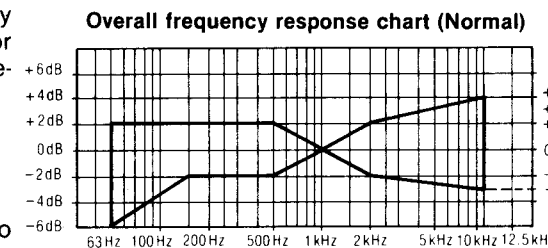


Fig. 10

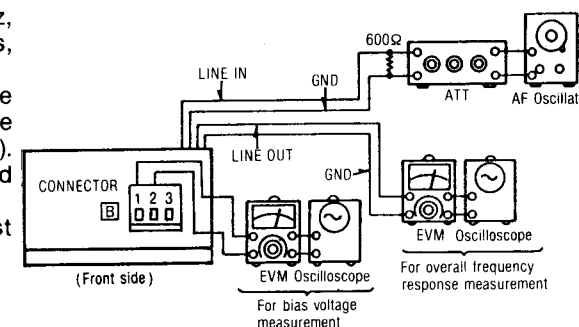


Fig. 11

Adjustment (A):

When the curve exceeds the overall specified frequency response chart (fig. 10) as shown in fig. 12.

- 1) Increase bias current by turning VR301 (L-CH) and VR302 (R-CH). (See fig. 1.)
- 2) Repeat steps 5 and 6 for confirmation (Proceed to steps 7, 8 and 9 if the curve is now within the charted specifications as shown fig. 10.)
- 3) If the curve still exceeds the specifications (fig. 10), increase bias current further and repeat steps 5 and 6.

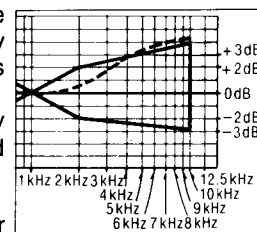


Fig. 12

Adjustment (B):

When the curve falls below the overall specified frequency response chart (fig. 10) as shown in fig. 13.

- 1) Reduce bias current by turning VR301 (L-CH) and VR302 (R-CH).
- 2) Repeat steps 5 and 6 for confirmation (Proceed to steps 7, 8 and 9 if the curve is now within the charted specifications as shown fig. 10.)
- 3) If the curve still falls below the charted specifications (fig. 10), reduce bias current further and repeat steps 5 and 6.

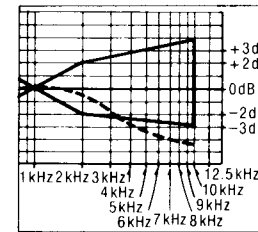


Fig. 13

7. Place UNIT into CrO₂ tape mode.
8. Change test tape to CrO₂ reference blank test tape (QZZCRX), and record 1kHz, 50Hz, 100Hz, 200Hz, 500Hz, 4kHz, 8kHz, 10kHz and 15kHz signals. Then, playback the signals and check if the curve is within the limits shown in the overall frequency response chart for CrO₂ tapes (fig. 14).
9. Place UNIT into metal tape mode and change test tape to metal reference blank test tape (QZZCRZ), and record 1kHz, 50Hz, 100Hz, 200Hz, 500Hz, 4kHz, 8kHz, 10kHz, 12.5kHz and 15kHz signals. Then, playback the signals and check if the curve is within the limits shown in the overall frequency response chart for metal tapes (fig. 14).
10. Confirm that bias currents are approximately as follows when the UNIT is set at different tape mode.

- Measure the voltage across the head using a EVM.

around 8V (Normal position)
Reference value: around 10V (CrO₂ position)
around 15V (Metal position)

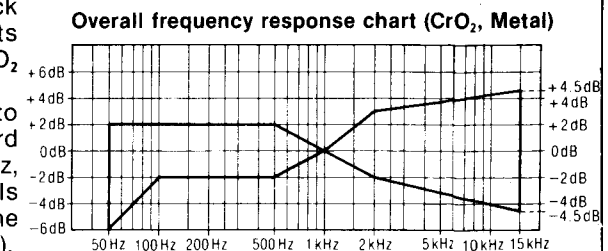


Fig. 14

Overall gain (TAPE [2])

Condition:
• Record/playback mode
• Input level controls...MAX
• Standard input level;
LINE IN...-24±4dB (63mV)

Equipment:
• EVM (Electronic Voltmeter)
• ATT
• Resistor (600Ω)
• Test tape (reference blank tape)
...QZZCRA for Normal
• AF oscillator
• Oscilloscope

1. Test equipment connection is shown in fig. 15.
2. Insert the normal reference blank tape (QZZCRA).
3. Place UNIT into record mode.
4. Supply a 1kHz signal through ATT (-24dB) from AF oscillator, to LINE IN.
5. Adjust ATT until monitor level at LINE OUT becomes 0.4V.
6. Playback recorded tape, and make sure that the output level at LINE OUT becomes 0.4V.
7. If measured value is not 0.4V, adjust it by using VR3 (L-CH) or VR4 (R-CH).
8. Repeat from step (2).

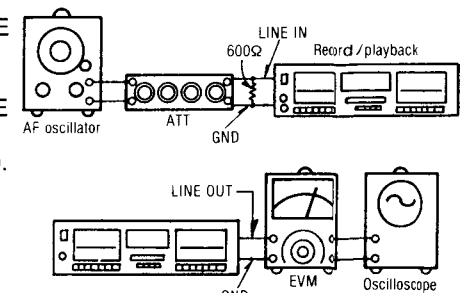


Fig. 15

Dolby NR circuit

Condition:
• Record mode
• Input level controls...MAX

Equipment:
• EVM (Electronic Voltmeter)
• ATT
• Resistor (600Ω)
• AF oscillator
• Oscilloscope

1. Test equipment connection is shown in fig. 16.
2. Place UNIT into record mode, set the Dolby NR switch to OUT position and supply a 5kHz signal to LINE IN to obtain 175mV at pin 7 (L-CH) {Pin 18 (R-CH)} of IC401.
3. Confirm that the values at pin 6 (L-CH) {pin 19 (R-CH)} with Dolby NR switch in the IN position are 8 (±2.5)dB (728mV) greater than the values at the OUT position of the Dolby NR switch.

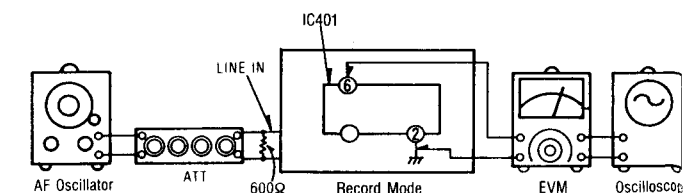


Fig. 16

ELECTRICAL PARTS LIST

NOTES: RESISTORS

ERD Carbon
ERG Metal-oxide
ERS Metal-oxide
ERO Metal-film
ERX Metal-film
ERQ Fuse type metallic
ERC Solid
ERF Cement

CAPACITORS

ECBA Ceramic
ECG Ceramic
ECK Ceramic
ECC Ceramic
ECF Ceramic
ECQM Polyester film
ECQ Polyester film
ECQF Polypropylene
ECED Electrolytic
ECEDN Non polar electrolytic
ECQS Polystyrene
ECSC Tantalum
QCS Tantalum

REPLACEMENT PARTS LIST

Important safety notice
Components identified by Δ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

Areas

* [M] For U.S.A.
* [E] For European areas except United Kingdom.
* [EK] For United Kingdom.
* [EH] For Holland.
* [EGA] For F.R. Germany.

* [PA] For Far East PX.
* [PE] For European Military.
* [XA] For Asia, Latin America, Middle East and Africa.
* [XL] For Australia.

RESISTORS

Ref. No.	Part No.	Value	Ref. No.	Part No.	Value	Ref. No.	Part No.	Value	Ref. No.	Part No.	Value
R 1, 2	ERD25TJ104	100k	R 105, 106	ERD25TJ824	820k	R 224, 225	ERD25FJ102	1k	R 420	ERD25FJ103	10k
R 3, 4, 5, 6	ERD25TJ153	15k	R 107, 108	ERD25TJ183	18k	R 226	ERD25FJ392	3.9k	R 421	ERD25FJ102	1k
R 7, 8	ERD25FJ820	82	R 109, 110	ERD25TJ153	15k	R 227	ERD25FJ103	10k			
R 9, 10	ERD25FJ101	100				R 228	ERD25TJ123	12k			
R 11, 12	ERD25FJ272	2.7k	R 111, 112	ERD25TJ104	100k	R 229, 230	ERD25FJ103	10k			
R 13, 14	ERD25TJ183	18k	R 113, 114	ERD25TJ473	47k						
R 15, 16	ERD25TJ274	270k	R 115, 116	ERD25FJ102	1k	R 231	ERD25TJ563	56k			
R 17, 18	ERD25FJ562	5.6k	R 117, 118	ERD25FJ472	4.7k	R 232, 233	ERD25FJ332	3.3k			
R 19, 20	ERD25FJ472	4.7k	R 119, 120	ERD25TJ333	33k	R 234	ERD25TJ123	12k			
R 21, 22	ERD25TJ153	15k	R 121, 122	ERD25TJ473	47k	R 235	ERD25FJ470	47			
			R 123, 124	ERD25TJ223	22k	R 236	ERD25FJ331	330			
R 23, 24	ERD25FJ561	560	R 125, 126	ERD25TJ474	470k	R 237, 238	ERD25FJ472	4.7k			
R 25, 26	ERD25FJ271	270	R 127, 128	ERD25FJ102	1k	R 239	ERD25TJ225	2.2M			
R 27, 28	ERD25TJ223	22k	R 129, 130	ERD25FJ222	2.2k	R 240	ERD25FJ102	1k			
R 29, 30	ERD25TJ153	15k				R 301	ERD25FJ1R0	1.0			
R 31, 32, 33, 34	ERD25FJ103	10k	R 131, 132	ERD25FJ103	10k	R 302	ERD25FJ100	10			
R 35, 36	ERD25FJ471	470	R 133, 134	ERD25FJ101	100						
R 37, 38	ERD25FJ222	2.2k	R 201	ERD25FJ472	4.7k	R 303, 304	ERD25FJ562	5.6k			
R 39, 40	ERD25FJ102	1k	R 202	ERD25TJ223	22k	R 305	ERD25FJ100	10			
			R 203	ERD25FJ472	4.7k	R 306	ERD25FJ681	680			
R 41, 42 [E]			R 204	ERD25TJ223	22k	R 307	ERD25FJ102	1k			
[EH][EGA][XA]	ERD25FJ470	47	R 205, 206,			R 308	ERD25FJ271	270			
R 41, 42 [EK][XL]	ERD2FCJ820	82	207, 208, 209	ERD25FJ103	10k	R 401, 402	ERD25FJ242	2.4k			
			R 210	ERD25TJ563	56k	R 403, 404	ERD25FJ471	470			
			R 211	ERD25FJ103	10k	R 405, 406	ERD25FJ473	47k			
R 43, 44	ERD25FJ3R3	3.3	R 212, 213,			R 407, 408	ERD25FJ432	4.3k			
R 45, 46	ERD25FJ472	4.7k	214, 215	ERD25TJ223	22k	R 409, 410	ERD25FJ332	3.3k			
R 47, 48	ERD25TJ393	39k									
R 49, 50	ERD25FJ121	120	R 216, 217	ERD25FJ103	10k	R 411, 412	ERD25FJ102	1k			
			R 218	ERD25TJ104	100k	R 413, 414	ERD25TJ274	270k			
R 51, 52	ERD25FJ102	1k	R 219, 220	ERD25FJ103	10k	R 415, 416	ERD25TJ184	180k			
R 101, 102	ERD25TJ104	100k	R 221, 222	ERD25TJ104	100k	R 417, 418	ERD25FJ470	47			
R 103, 104	ERD25FJ820	82	R 223	ERD25FJ103	10k	R 419	ERD25FJ512	5.1k			

CAPACITORS

Ref. No.	Part No.	Value	Ref. No.	Part No.	Value	Ref. No.	Part No.	Value	Ref. No.	Part No.	Value
C 1, 2	ECKD1H821KB	820p	C 33, 34	ECEA1AU221	220	C 202, 203	ECEA1HU4R7	4.7	C 405, 406	ECQM1H333JZ	0.033
C 3, 4	ECQB1H682JZ	0.0068	C 35, 36	ECKD1H223ZF	0.022	C 204	ECEA1CU100	10	C 407, 408	ECQM1H473JZ	0.047
C 5, 6	ECEA0JU101	100	C 37	ECKD1H223ZF	0.022	C 205, 206	ECKD1H223ZF	0.022	C 409, 410	ECQM1H334JZ	0.33
C 11, 12	ECQB1H123JZ	0.012	C 101, 102	ECKD1H821KB	820p	C 207	ECEA1AU221	220	C 411, 412	ECQM1H104JZ	0.1
C 13, 14	ECQB1H682JZ	0.0068	C 105, 106	ECEA0JU101	100	C 301	ECQP1183JZ	0.018	C 601, 602	ECEA1AU221	220
C 15, 16	ECQB1H332JZ	0.0033	C 107, 108	ECCD1H121K	120p	C 302	ECEA1HF4R7	4.7	C 603, 604	ECKD1H223ZF	0.022
C 17, 18	ECKD2H121KB	120p	C 109, 110	ECQB1H392JZ	0.0039	C 303	ECFDD153KXY	0.015	C 605, 606	ECEA1CU102	1000
C 19, 20	ECKD1H122KB	0.0012	C 111, 112,			C 304	ECFDD822KVY	0.0082	C 607	ECEA1CU331	330
C 21, 22, 23,			113, 114	ECEA1HU010	1	C 306	ECKW1H103ZF	0.01			
24, 25, 26	ECEA1HU010	1	C 115	ECKD1H223ZF	0.022				C 608	ECKD2H472PE	0.0047
C 27, 28, 29, 30	ECEA1CU100	10				C 401, 402	ECKD1H221KB	220p	C 701, 702	ECEA1HU2R2	2.2
C 31, 32	ECEA1HU4R7	4.7	C 201	ECEA1CU100	10	C 403, 404	ECQB1H472JZ	0.0047	C 703	ECKD1H103ZF	0.01

Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description
INTEGRATED CIRCUITS			DIODES & RECTIFIERS					
IC 1	M5219L	IC	Q 206, 207, 208	2SC2603EFG	Transistor	D 201, 202, 203	1SS254	Diode
IC 2	M5218L	IC	Q 209	2SA1115E	Transistor	D 204	Δ SM112	Rectifier
IC 101	M5219L	IC	Q 301	2SD592ANC-Q	Transistor	D 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218	1SS254	Diode
IC 401	NE657	IC				D 601	Δ MA4180H	Zener
IC 701	AN6888	IC	Q 302	[E][EH] [EGA] [XA] 2SA1115E	Transistor	D 602, 603, 604, 605, 606, 607	Δ SM112	Rectifier
			Q 303	[E][EH] [EGA] [XA] 2SC2603EFG	Transistor	D 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712	LN121260P	LED BLOCK
			Q 304	[E][XL] 2SB621A-R	Transistor	D 701, 702, 703, 704	LN464YCP	LED
						D 705, 706, 707, 708, 709, 710	LN864RCP	LED
			Q 305	[E][XL] 2SD592ANC-Q	Transistor	D 711, 712	LN464YCP	LED
			Q 601	2SD592ANC-Q	Transistor	D 713	LN846RP	LED
			Q 602	2SB621A-R	Transistor	D 901	SVDMC911	Diode
			Q 901	2SA1115E	Transistor			
			Q 902	2SC2603EFG	Transistor			

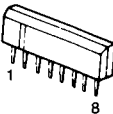
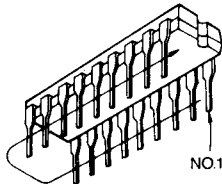
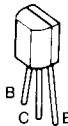
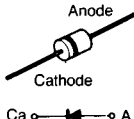
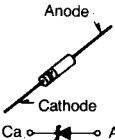
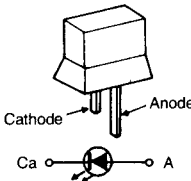
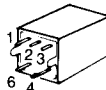
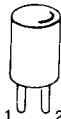
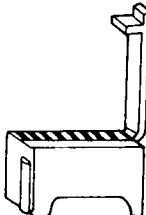
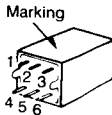
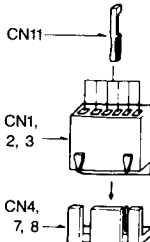
Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description
VARIABLE RESISTORS			TRANSFORMERS			JACK		
VR 1, 2	EVNK6AA00B24	Playback Gain Adj	T 1	[E][EH] [EGA] Δ SLT5K211S	AC Power Transformer	J 1	SJJ126B	Headphones Jack
VR 3, 4	EVNK6AA00B24	Overall Gain Adj	T 1 [EK]	[XL] Δ SLT5K212S	AC Power Transformer	CONNECTORS		
VR 101, 102	EWAPB1X05A54	Input Control	T 1 [XA]	Δ SLT5K215S	AC Power Transformer	CN 1	QJS1920TN	2 Pin Socket
VR 103, 104	EVNK6AA00B24	Playback Gain Adj				CN 2	QJS1921TN	3 Pin Socket
VR 301, 302	EVNK6AA00B15	Bias Current Adj.				CN 3	QJS1923TN	9 Pin Socket
						CN 4	QJP1921TN	3 Pin Plug
						CN 5	QJT1090	Check Pin
						CN 6	SJS5519	5 Pin Jumper Connector
						CN 7	QJP1923TN	9 Pin Plug
						CN 8	QJP1920TN	2 Pin Plug
						CN 9	SJS5327	3 Pin Jumper Connector
						CN 10	SJS5627	6 Pin Jumper Connector
						CN 11	QJT1052	Contact
						CN 12	QJP1922TN	2 Pin Plug
						CN 13	QJS1922TN	5 Pin Socket

Change of Parts List (RS-B24W [M] from RS-D550W [E])

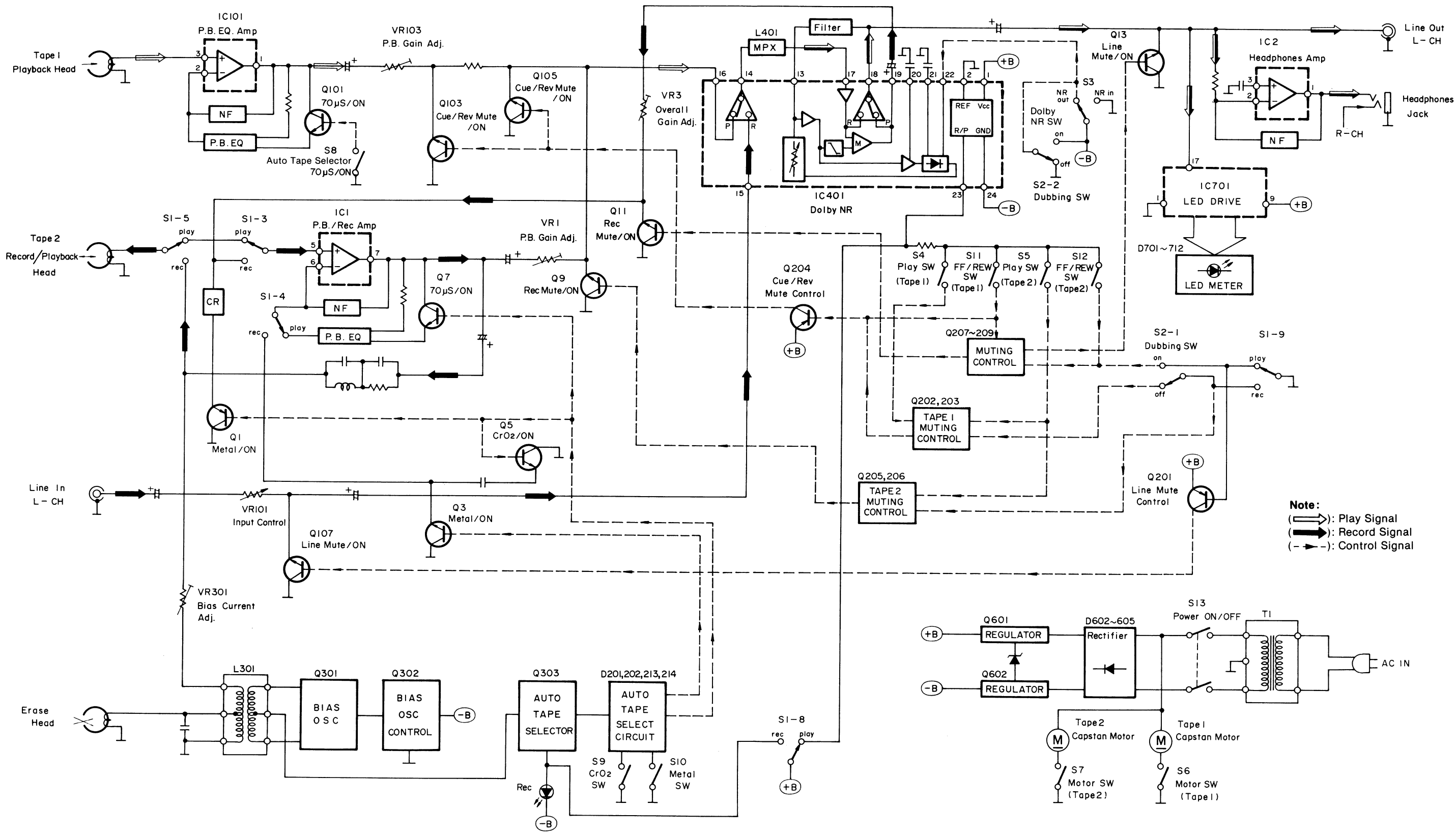
Ref. No.	Change of Parts No.		Description
	RS-D550W [E]	RS-B24W [M]	
T1 Δ	SLT5K211S	SLT5K210S	AC Power Transformer

* The parts list of RS-B17W [PA][PE] are the same as for RS-D550W [XA].

TERMINAL GUIDE OF TRANSISTORS, DIODES AND IC'S

M5218L, M5219L	  <table><tr><td>AN6888</td><td>18 pin</td></tr><tr><td>NE657</td><td>24 pin</td></tr></table>				AN6888	18 pin	NE657	24 pin	2SA1115E, 2SC2603EFG	2SD592ANC-Q 2SB621A-R															
AN6888	18 pin																								
NE657	24 pin																								
	 																								
2SD1468R	SM112, 1SS254	MA4180H	LN846RP	QLM9210K	QLQX0343KWA																				
																									
QLBO198KA	QLQX1011Y	QJT1090	 <table><tr><td>CN6</td><td>SJS5519</td><td>5 Pin</td></tr><tr><td>CN9</td><td>SJS5327</td><td>3 Pin</td></tr><tr><td>CN10</td><td>SJS5627</td><td>6 Pin</td></tr></table>			CN6	SJS5519	5 Pin	CN9	SJS5327	3 Pin	CN10	SJS5627	6 Pin											
CN6	SJS5519	5 Pin																							
CN9	SJS5327	3 Pin																							
CN10	SJS5627	6 Pin																							
																									
			<table><tr><td>2 Pin</td><td>CN1</td><td>QJS1920TN</td><td>CN8</td><td>QJP1920TN</td></tr><tr><td>3 Pin</td><td>CN2</td><td>QJS1921TN</td><td>CN4</td><td>QJP1921TN</td></tr><tr><td>9 Pin</td><td>CN3</td><td>QJS1923TN</td><td>CN7</td><td>QJP1923TN</td></tr><tr><td></td><td>CN11</td><td>QJT1054</td><td></td><td></td></tr></table>			2 Pin	CN1	QJS1920TN	CN8	QJP1920TN	3 Pin	CN2	QJS1921TN	CN4	QJP1921TN	9 Pin	CN3	QJS1923TN	CN7	QJP1923TN		CN11	QJT1054		
2 Pin	CN1	QJS1920TN	CN8	QJP1920TN																					
3 Pin	CN2	QJS1921TN	CN4	QJP1921TN																					
9 Pin	CN3	QJS1923TN	CN7	QJP1923TN																					
	CN11	QJT1054																							

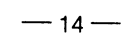
■ BLOCK DIAGRAM



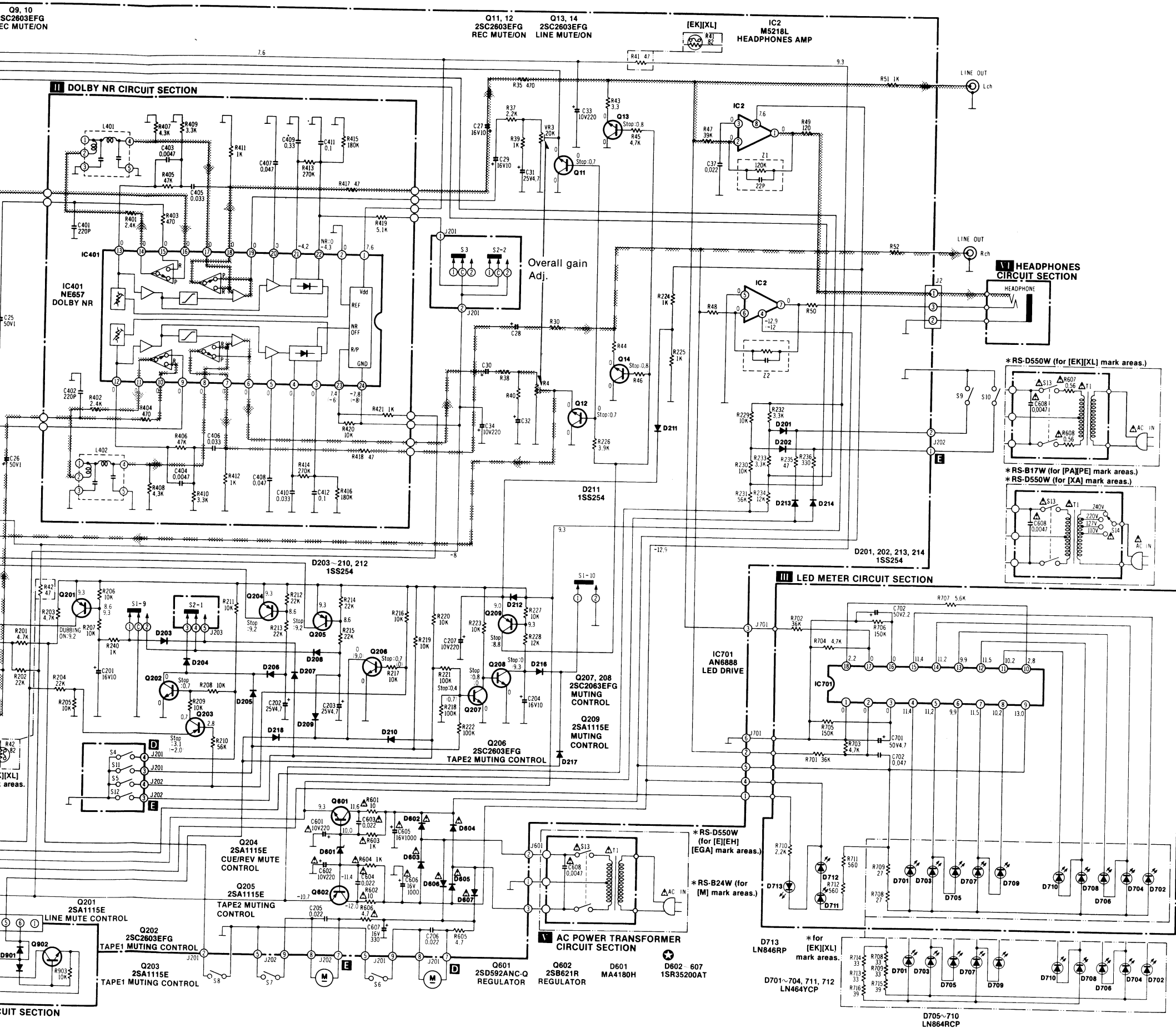
■ SC

A
B
C
D
E
F
G

G

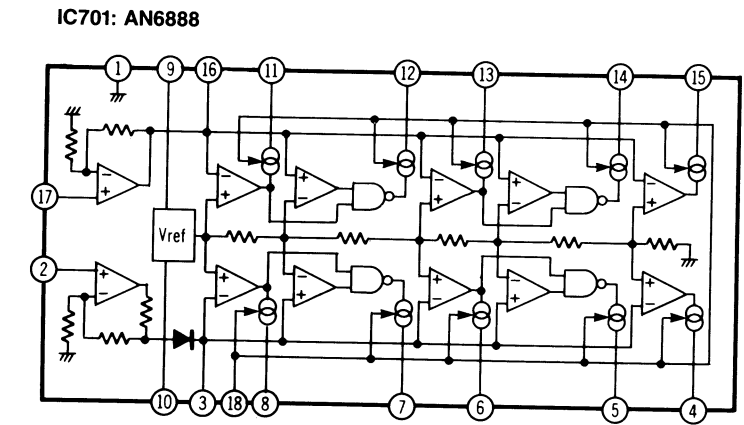


Q9, 10
2SC2803EFG
REC MUTE/ON



- NOTES:
- S1-1 ~ S1-10 : Record/playback switch (shown in **playback** position).
 - S2 : Dubbing switch (shown in **OFF** position).
 - S3 : Dolby NR switch (shown in **OUT** position).
 - S4 : Tape [1] **PLAY** switch (shown in **OFF** position).
 - S5 : Tape [2] **PLAY** switch (shown in **OFF** position).
 - S6 : Tape [1] motor switch (shown in **OFF** position).
 - S7 : Tape [2] motor switch (shown in **OFF** position).
 - S8 : Tape [1] auto tape select switch (for **CrO₂** mode).
 - S9 : Tape [2] auto tape select switch (for **CrO₂** mode).
 - S10 : Tape [2] auto tape select switch (for **Metal** mode).
 - S11 : Tape [1] **FF/REW** switch (shown in **OFF** position).
 - S12 : Tape [2] **FF/REW** switch (shown in **OFF** position).
 - S13 : Power ON/OFF switch (shown in **OFF** position).
 - S14 : AC voltage selector (For [XA][PE][PA] mark areas).
- Resistance are in ohms (Ω), 1/4 watt unless specified otherwise.
1K=1,000 Ω , 1M=1,000K Ω
- Capacity are in micro-farads (μ F) unless specified otherwise.
- All voltage values shown in circuitry are under no signal condition and playback mode with volume control at minimum position otherwise specified.
- () Voltage values at record mode.
CrO₂ Voltage values at CrO₂ tape mode.
Metal Voltage values at Metal tape mode.
DUBBING ON Voltage values at dubbing on.
B Voltage values at Dolby NR-B mode.
- For measurement use EVM.
- (—) indicates B (bias).
- (*) indicates the flow of the playback signal.
- (*) indicates the flow of the recording signal.
- Important safety notice
Components identified by Δ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
- The part no. of diodes mentioned in the schematic diagram stand for production part No. Regarding the part No. with $\odot$ mark the production part No. are different from the replacement part No.
- Therefore, when placing an order for replacement part, please use the part No. in the replacement parts list.
- The supply parts number is described alone in the replacement parts list.
- This schematic diagram may be modified at any time with the development of new technology.

EQUIVALENT CIRCUIT

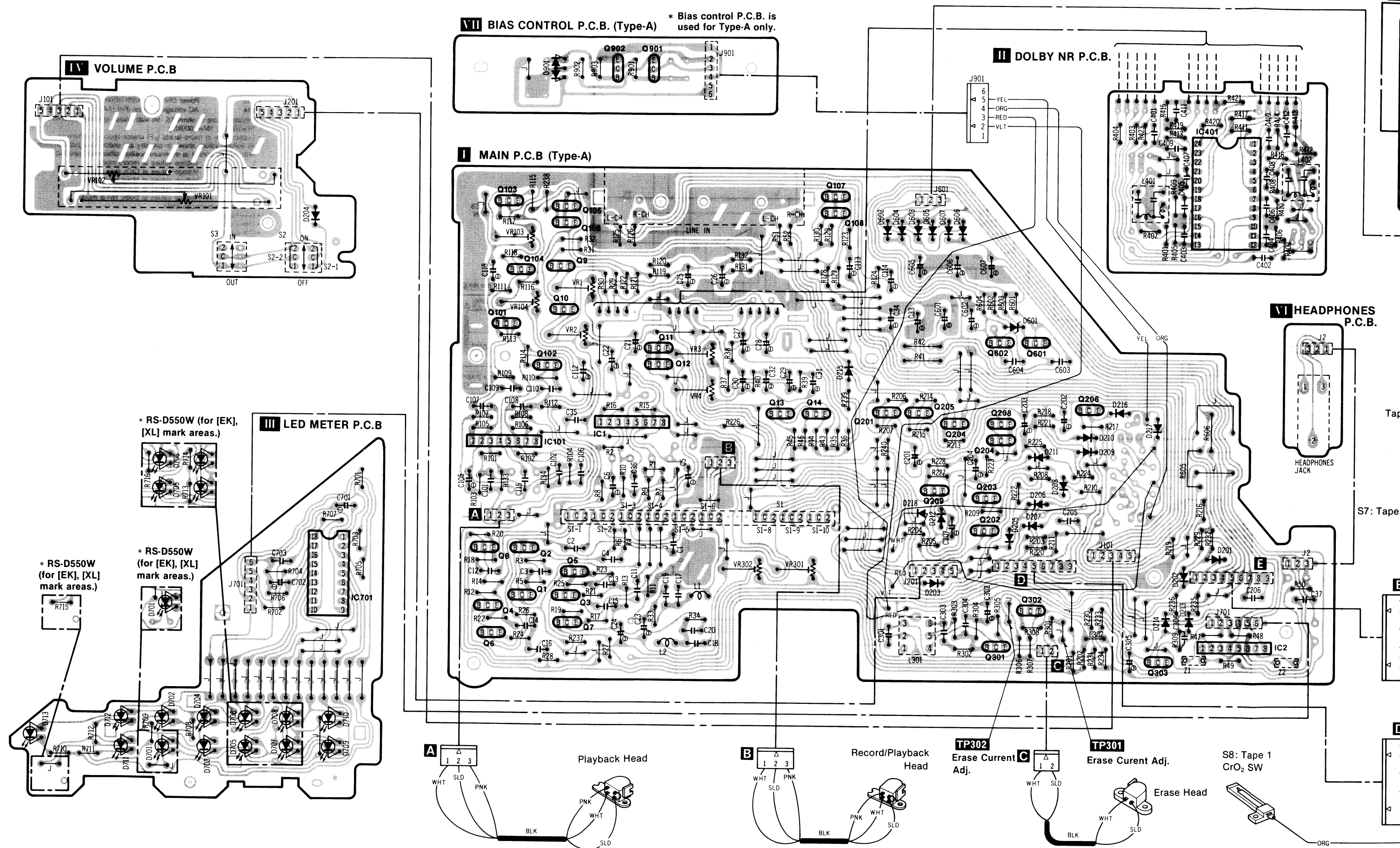


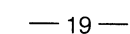
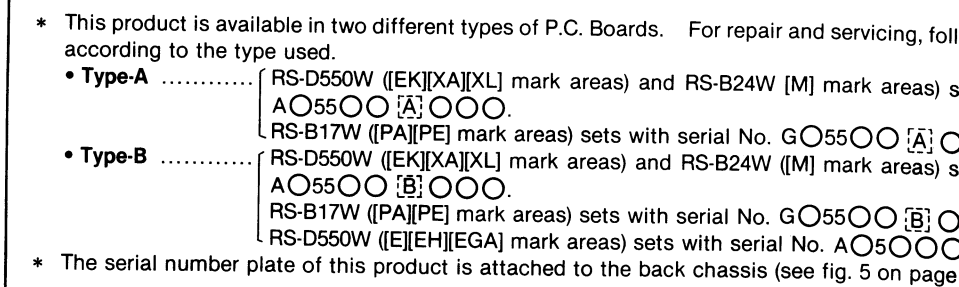
SPECIFICATIONS * Input level control ...MAX

Playback S/N ratio * Test tape...QZZCFM	Greater than 45dB
Overall distortion * Test tape ...QZZCRA for Normal ...QZZCRX for CrO ₂ ...QZZCRZ for Metal	Normal..... Less than 3.5% CrO ₂ , Metal..... Less than 4%
Overall S/N ratio * Test tape...QZZCRA	Greater than 43dB (without NAB filter)

- * Caution!
- IC and LSI are sensitive to static electricity.
Secondary trouble can be prevented by taking care during repair.
- * Cover the parts boxes made of plastics with aluminum foil.
 - * Ground the soldering iron.
 - * Put a conductive mat on the work table.
 - * Do not touch the legs of IC or LSI with the fingers directly.

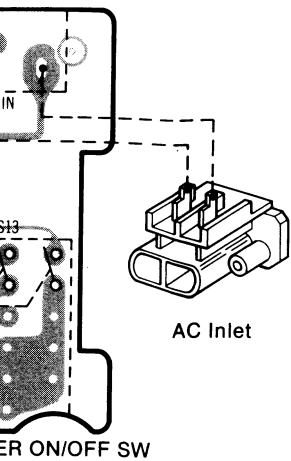
CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM



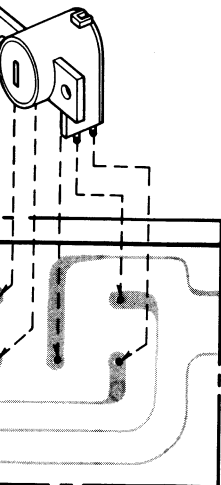


NOTES:

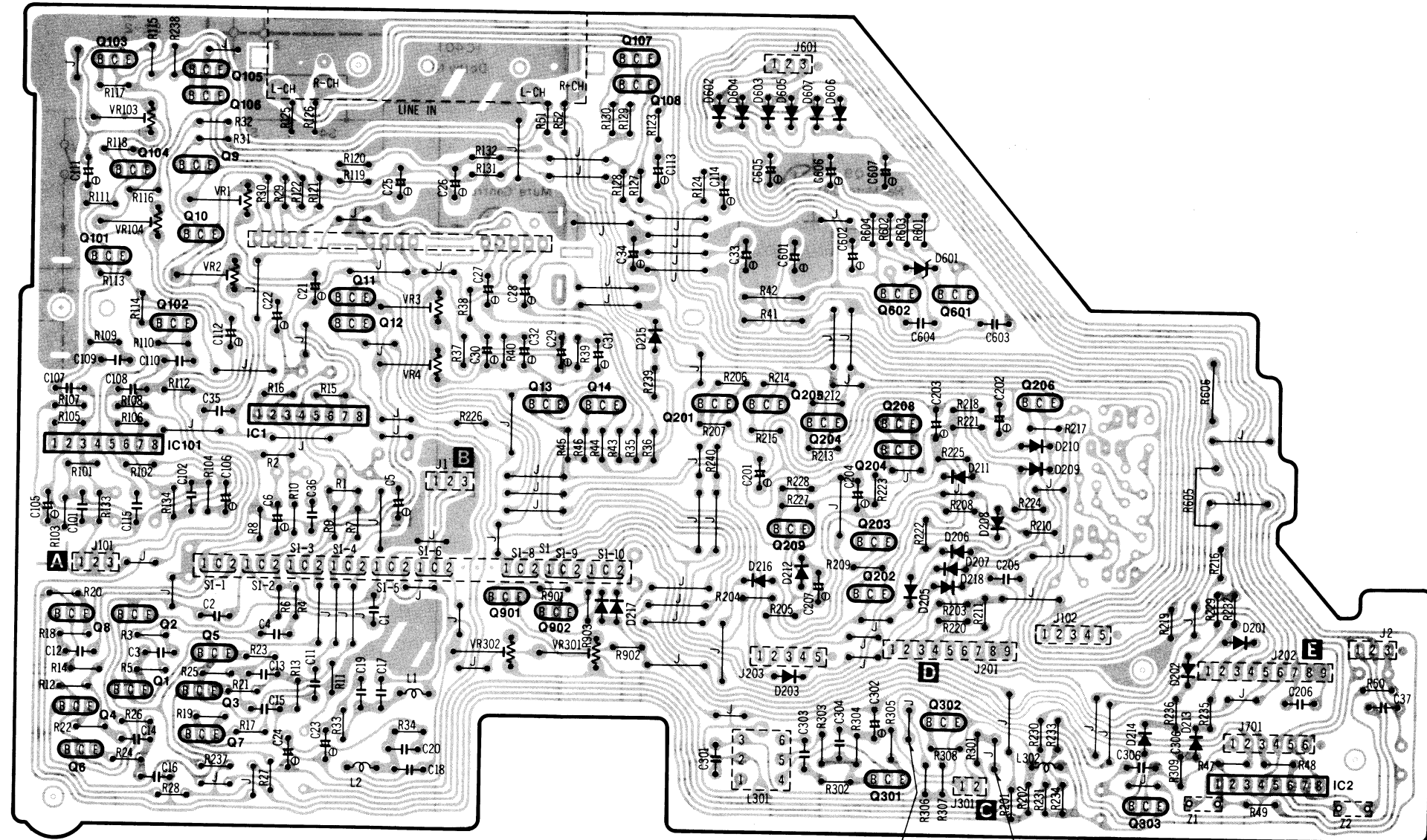
- * This product is available in two different types of P.C. Boards. For repair and servicing, follow the instructions according to the type used.
- **Type-A** RS-D550W ([EK][XA][XL] mark areas) and RS-B24W [M] mark areas) sets with serial No. A05500 [A] 0000.
RS-B17W ([PA][PE] mark areas) sets with serial No. G05500 [A] 0000.
- **Type-B** RS-D550W ([EK][XA][XL] mark areas) and RS-B24W ([M] mark areas) sets with serial No. A05500 [B] 0000.
RS-B17W ([PA][PE] mark areas) sets with serial No. G05500 [B] 0000.
RS-D550W ([E][EH][EGA] mark areas) sets with serial No. A05000 [A] 0000.
- * The serial number plate of this product is attached to the back chassis (see fig. 5 on page 3).



S14: AC Voltage Selector



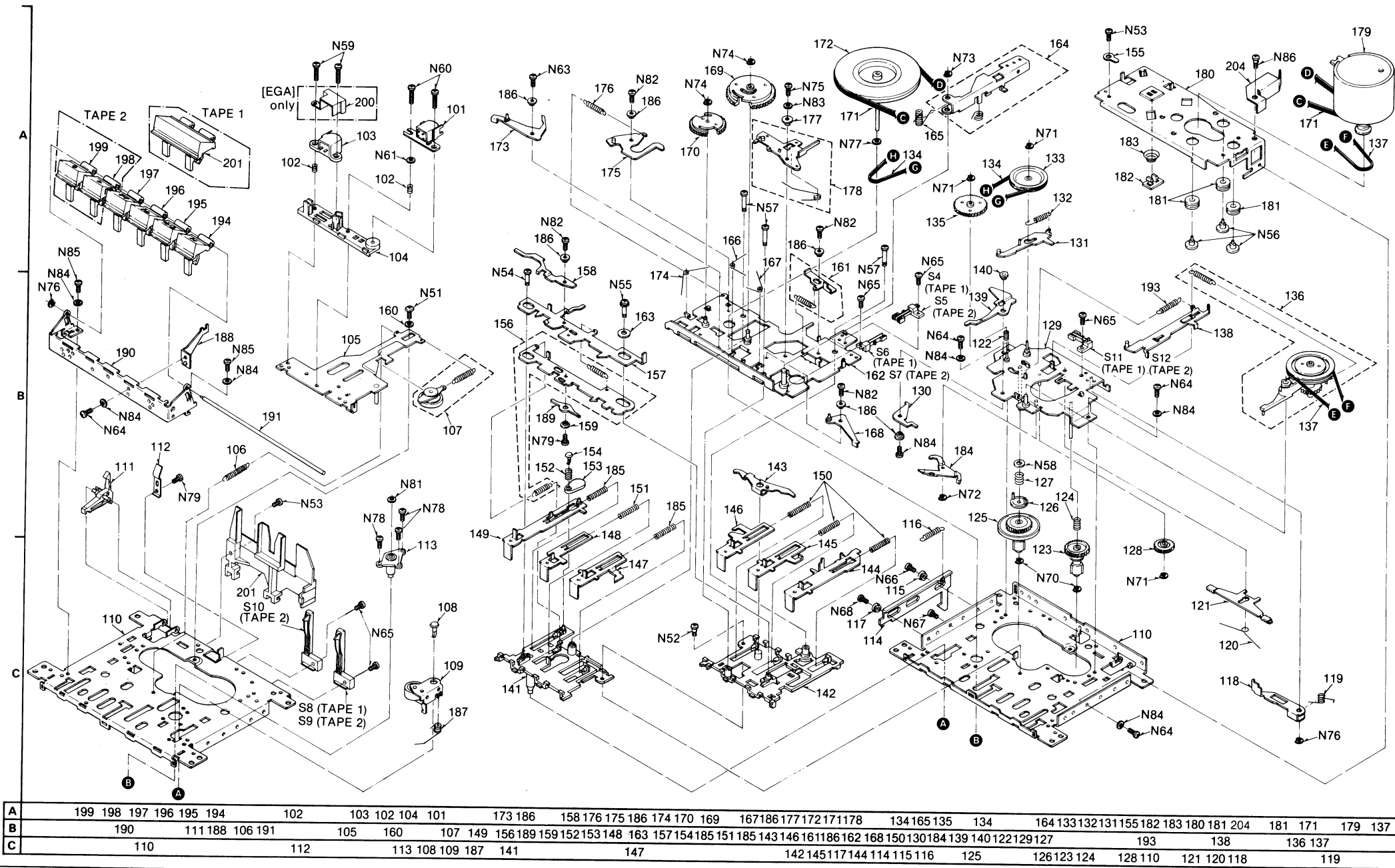
I MAIN P.C.B (Type-B)



TP302
Erase Current
Adj.

TP301
Erase Current Adj.

MECHANICAL PARTS LOCATION



REPLACEMENT PARTS LIST

Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description
MECHANICAL PARTS														
101	QWY4165G	R.P. Head	123	SMQ4800	Supply Reel Ass'y	149	SMQ4858	Pause Button Lever Ass'y	172	SMQ4900	Flywheel Ass'y	196	SBCSD250-3	Rew Button Ass'y
102	SMQ4596	Head Spring	124	SMQ4802	Back Tension Spring	150	SMQ4856	Button Lever Spring	173	SMQ4902	P. Trigger Arm Ass'y	197	SBCSD250-4	FF Button Ass'y
103	QWY2138G	E. Head	125	SMQ4804	Take Up Reel Ass'y	151	SMQ4858	Button Lever Spring	174	SMQ4904	P. Trigger Arm Spring	198	SBCSD250-5	Stop Button Ass'y
104	SMQ4768	Head Base	126	SMQ4806	Sensing Piece	152	SMQ4860	Pause Lever Spring	175	SMQ4906	Pause Arm Ass'y	199	SBCSD250-6	Pause Button Ass'y
105	RFD135Z	Head Panel Ass'y	127	SMQ4808	Sensing Piece Spring	153	SMQ2444	Pause Lever	176	SMQ4908	Pause Arm Spring	200	[EGA] QTS1652	Head Shield Plate
106	SMQ4770	Head Panel Spring	128	SMQ4810	FF, Gear	154	SMQ4862	P. Stopper	177	SMQ4910	Lift Arm Collar	201	QWY2175G	E. Head (Dummy)
107	SMQ4772	Take Up Roller Shaft Ass'y	129	RFU16Z	Reel Base Ass'y	155	SJD202-1	Lug Plate	178	SMQ4912	Lift Arm Ass'y	202	SMQT1461	Switch Clamper
108	SMQ4774	Function Lever Stopper	130	SMQ4814	T. Roller Kick Lever	156	SMQ4866	Push Button Function Ass'y	179	SMQSD3920	Motor Ass'y (TAPE 1)	203	SBCSD550W-1	Play Button Ass'y (TAPE 1)
109	SMQ4776-1	Pinch Roller Arm Ass'y	131	SMQ4818	Sensing Lever	157	SMQ4868	Switch Function Lever	180	SMQT1456	F.M. Hold Plate	204	SMN1984-1	Kick Angle
110	SMQT1458	Chassis	132	SMQ4820	Sensing Lever Spring	158	SMQ4872	E. Kick Lever	181	SMQ4916	Motor Rubber	SCREWS, NUTS & WASHERS		
111	SMQ4778	REC, Safety Lever (TAPE 2)	133	SMQ4822	Pully	159	RFX85Z	Collar	182	SMQ4920	Flywheel Patch Plate	N 51	XSB26 + 4FZ	Screw
112	SMQ4780	Pack Hold Spring	134	SMQ4824	Full Auto Belt	160	SMQ4168	Collar	183	SMQ4922	Damper Spring	N 52	SMQ4838	Collar Screw
113	SMQ4782	Flywheel Metal	135	SMQ4826	Cam Gear	161	SMQ4880	REC, Function Lever Ass'y	184	SMQ4940	Kick Lever	N 53	XSN26 + 3	Screw
114	RFY183Z	Eject Slide Lever	136	SMQ4828	R.F. Clutch Arm Ass'y	162	SMQT1455	Sub Chassis Ass'y	185	SMQ4858	Button Lever Spring	N 54	SMQ4870	Collar Screw
115	SMQ4786	Collar	137	SMQ4830	R.F. Belt	163	RFN73Z	Spacer	186	SMQ4816	Collar	N 55	SMQ4878	Collar Screw
116	RFS103Z	E.H. Base Spring	138	SMQ4832	R.F. Slide Lever Ass'y	164	SMQ4884	REC, Function Arm Ass'y	187	SMQT1453	Pinch Roller Spring	N 56	SMQ4918	Collar Screw
117	SMQ4788	Collar	139	SMQ4834	Auto Lever	165	SMQ4886	REC, Function Arm Spring	188	SMQ4960	R.F. Stopper	N 57	SMQ4942	Collar Screw
118	RFY184Z	Control Lever	140	SMQ4938	Auto Lever Collar	166	SMQ4888	M. Gear Spring	189	RFY353Z		N 58	SMQT1454	Polyslider Washer
119	RFS379Z	Control Lever Spring	141	SMQ4836	Button Base (L)	167	SMQ4890	M. Trigger Arm Spring	190	SMQT1457	Button Flame	N 59	XSN2 + 8	Screw @2x8
120	SMQ4792	Brake Spring	142	SMQ4840	Button Base (R)	168	SMQ4892	M. Trigger Arm Ass'y	191	SMQ4958	Button Lever Shaft	N 60	XSN2 + 6	Screw @2x6
121	SMQ4794	Brake Arm Ass'y	143	SMQ4842	REC, Stopper	169	SMQ4894	M. Gear	193	RFS378Z	RF Slide Lever SP	N 61	XWG2	Washer 2ø
122	SMQT1549	Cam Gear Spring	144	SMQ4844	REC, Button Lever	170	SMQ4896	P. Gear	195	SBCSD250-1	Rec Button Ass'y (TAPE 2)	N 63	SMQT1460	Screw (For Camera)
			145	SMQ4846	Play Button Lever	171	SMQ4898	Main Belt						
			146	SMQ4848	RWD, Button Lever									
			147	SMQ4850	FF, Button Lever									
			148	SMQ4852	Stop Button Lever									

Change of

Ref. No.	RS-D
MECHANICAL	
194	SBCS
195	SBCS
196	SBCS

* The parts list

Rec S

Supply

Head p

Record/Play

(10)

E

Rec but

Play bu

(1)

(1)

(1)

Ca

Pau

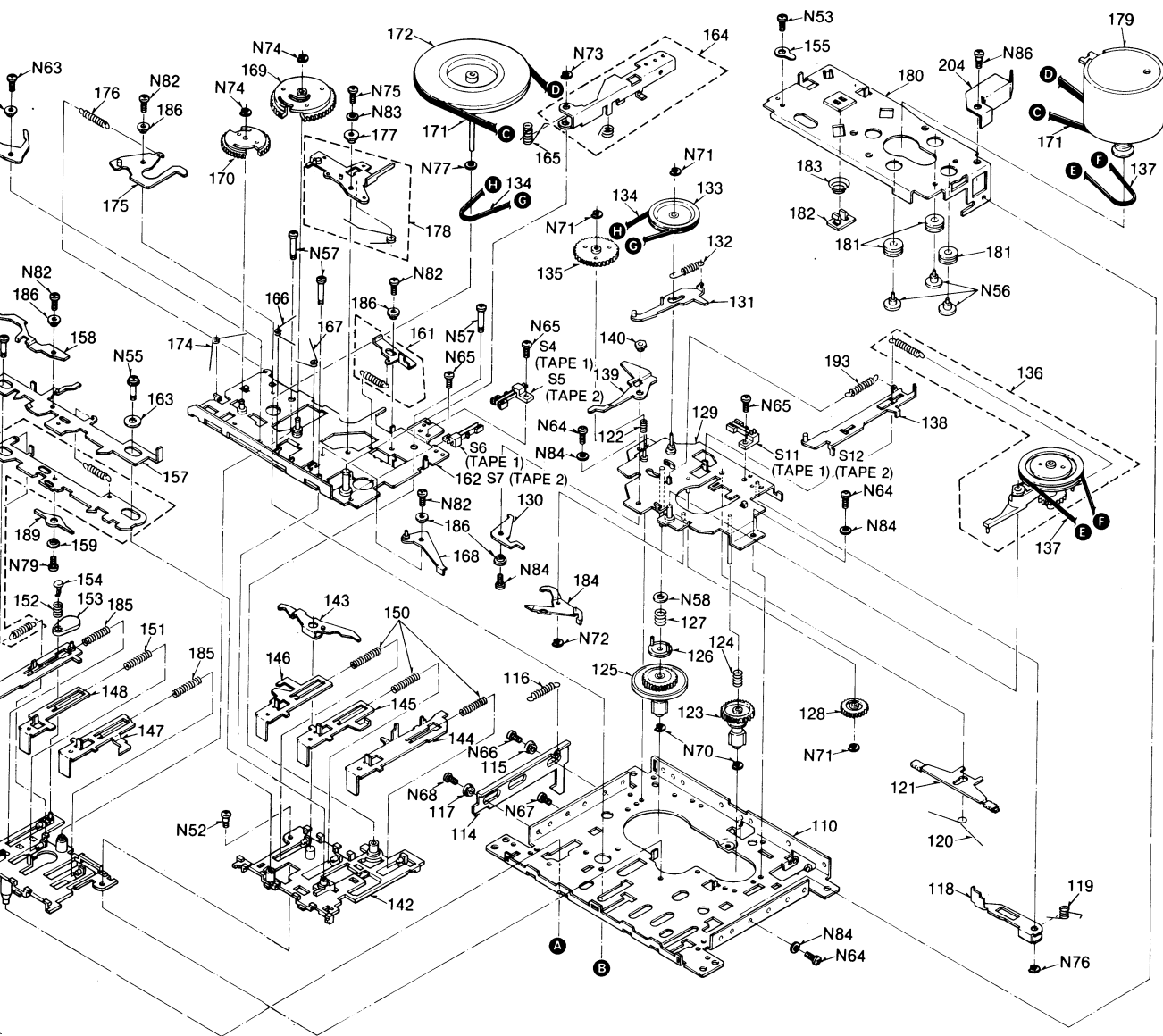
(1)

Flywhe

(17)

FM ho

(1)



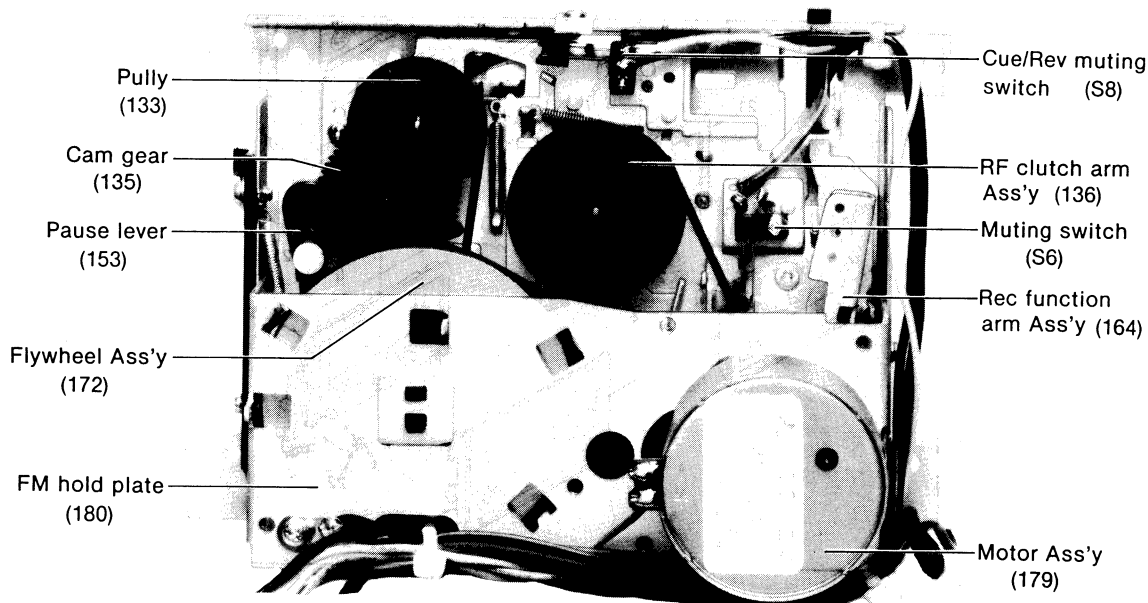
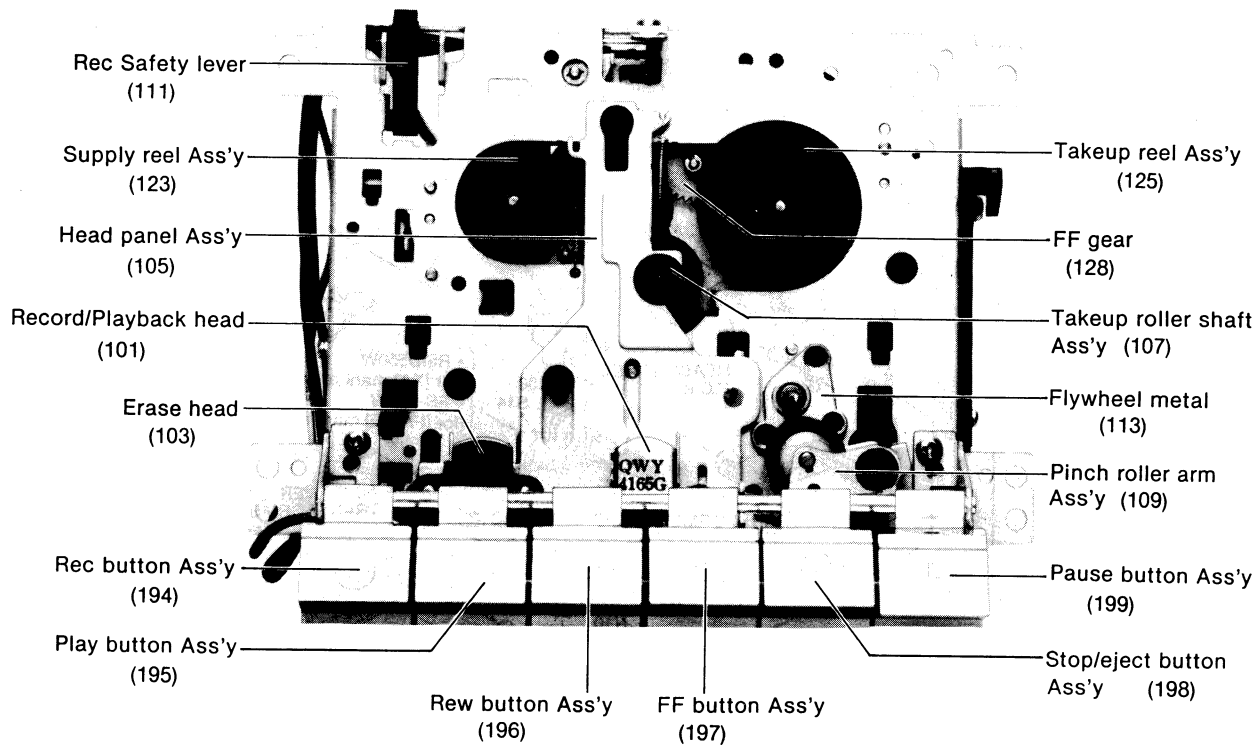
156	158	176	175	186	174	170	169	167	186	177	172	171	178	134	165	135	134	164	133	132	131	155	180	204	181	171	179	137
159	159	152	153	148	163	157	154	185	151	185	143	146	161	186	162	168	150	130	184	139	140	122	129	193	138	136	137	
					147						142	145	117	144	114	115	116	125	126	123	124	128	110	121	120	118	119	

Part Name & Description	Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description
Rec Button Lever Ass'y	172	SMQ4900	Flywheel Ass'y	196	SBCSD250-3	Rew Button Ass'y	N 64	XSN2 + 4	Tams Screw $\phi 2 \times 4$
Stop Button Lever Spring	173	SMQ4902	P. Trigger Arm Ass'y	197	SBCSD250-4	FF Button Ass'y	N 65	XSN2 + 6	Tams Screw $\phi 2 \times 5$
Rec Button Lever Spring	174	SMQ4904	P. Trigger Arm Spring	198	SBCSD250-5	Stop Button Ass'y	N 66	XSN26 + 5	Screw $\phi 2.6 \times 5$
Stop Button Lever Spring	175	SMQ4906	Pause Arm Ass'y	199	SBCSD250-6	Pause Button Ass'y	N 67	XSN2 + 5	Screw $\phi 2 \times 5$
Stop Button Lever	176	SMQ4908	Pause Arm Spring				N 68	XSN2 + 6	Screw $\phi 2 \times 6$
Stopper	177	SMQ4910	Lift Arm Collar				N 69	XSN2 + 5	Screw $\phi 2 \times 5$
Stopper Plate	178	SMQ4912	Lift Arm Ass'y				N 70	RFE133Z	E-Ring 1.5 ϕ Special
Rec Button Function Ass'y	179	SMQSD3920	Motor Ass'y (TAPE 1)				N 71	SMQ4930	Polyslider Washer
FF Button Function Ass'y	179	SMQSD3919	Motor Ass'y (TAPE 2)						
Rec Button Lever	180	SMQT1456	F.M. Hold Plate				N 72	XUC12FT	E-Ring 1.2 ϕ
Rec Button Lever	181	SMQ4916	Motor Rubber				N 73	XUC3FT	E-Ring 3.0 ϕ
Rec Button Lever	182	SMQ4920	Flywheel Patch Plate				N 74	XUC2FT	E-Ring 2.0 ϕ
Rec Button Lever	183	SMQ4922	Damper Spring				N 75	XSN26 + 6	Screw $\phi 2.6 \times 6$
Rec Button Lever	184	SMQ4940	Kick Lever				N 76	XUC15FT	E-Ring 1.5 ϕ
Rec Button Lever	185	SMQ4858	Button Lever Spring				N 77	SMQ4932	Polyslider Washer
Rec Button Lever	186	SMQ4816	Collar				N 78	SMQ4934	Screw (For Camera) $\phi 2 \times 3$
Rec Button Lever	187	SMQT1453	Pinch Roller Spring				N 79	XSN26 + 3	Screw $\phi 2.6 \times 3$
Rec Button Lever	188	SMQ4960	Stopper				N 80	SMQ4944	Screw (For Camera) $\phi 2 \times 4.5$
Rec Button Lever	189	RFY353Z	R.F. Stopper				N 81	SMQ4936	Nylon Washer 2 $\times$ 5 $\times$ 0.5
Rec Button Lever	190	SMQT1457	Button Flame				N 82	SMQ4926	Screw (For Camera) $\phi 2 \times 2.5$
Rec Button Lever	191	SMQ4958	Button Lever Shaft				N 83	XWA2B	Washer 2 ϕ
Rec Button Lever	193	RFS378Z	RF Slide Lever SP				N 84	XWA26B	Washer 26 ϕ
Rec Button Lever	194	SBCSD250-1	Rec Button Ass'y (TAPE 2)				N 85	XSN26 + 4	Spring $\phi 26 + 4$
Rec Button Lever	195	SBCSD250-2	Play Button Ass'y (TAPE 2)				N 86	QH1168	Screw
Rec Button Lever									

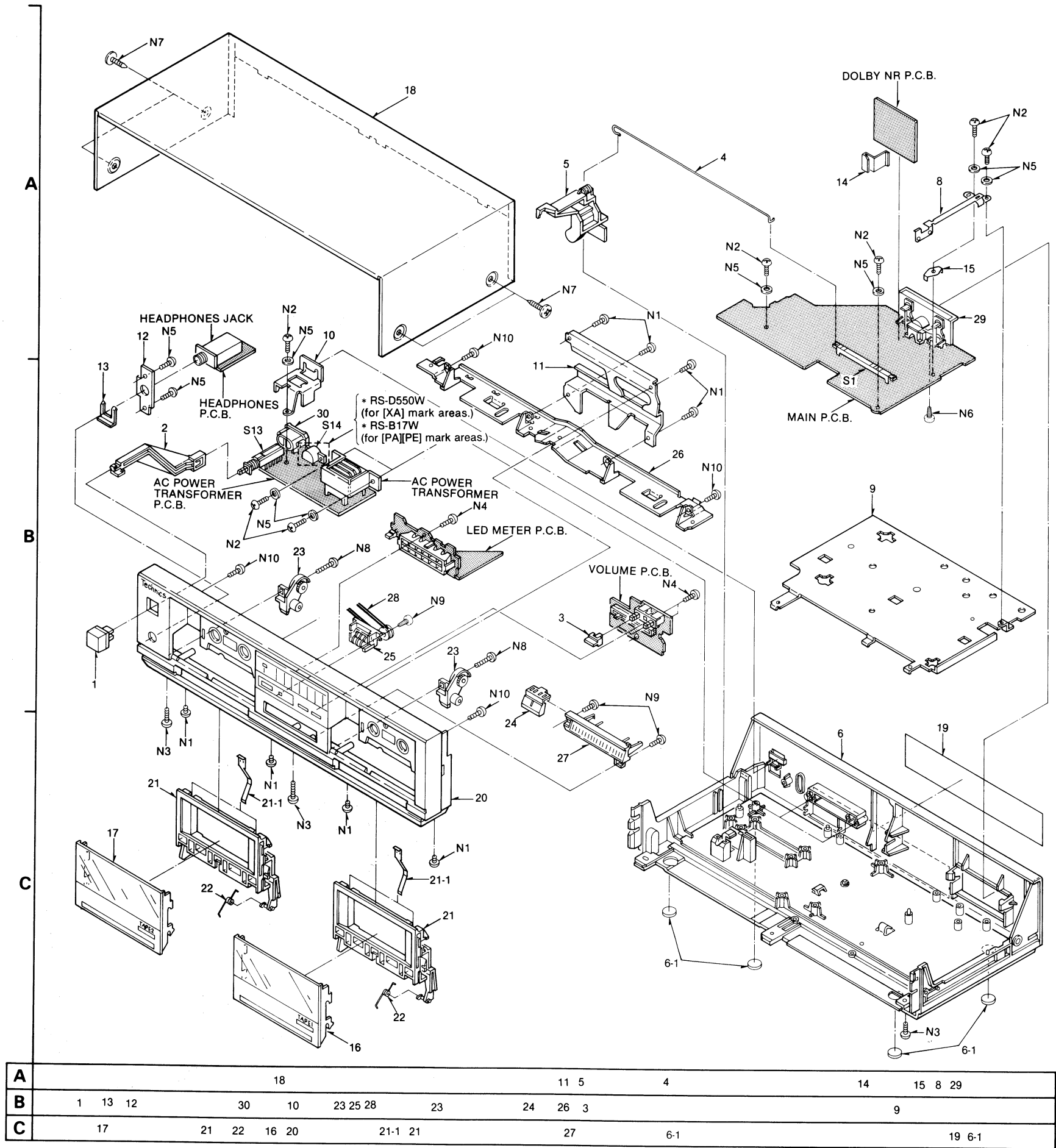
• Change of Part List (RS-B17W from RS-D550W)

Ref. No.	Change of Part No.		Description	Ref. No.	Change of Part No.		Description
	RS-D550W	➡ RS-B17W			RS-D550W	➡ RS-B17W	
MECHANICAL PARTS				197	SBCSD250-4	SBCSB17W-4	FF Button Ass'y
194	SBCSD250-1	SBCSB17W-1	Rec Button Ass'y	198	SBCSD250-5	SBCSB17W-5	Stop Button Ass'y
195	SBCSD250-2	SBCSB17W-2	Play Button Ass'y (TAPE 2)	199	SBCSD250-6	SBCSB17W-6	Pause Button Ass'y
196	SBCSD250-3	SBCSB17W-3	Rew Button Ass'y	203	SBCSD550W-1	SBCSB17W-7	Play Button Ass'y (TAPE 1)

* The parts list of RS-B24W are the same as for RS-D550W.



CABINET PARTS LOCATION



Areas

- * [M] For U.S.A.
- * [E] For European areas except United Kingdom.
- * [EK] For United Kingdom.
- * [EH] For Holland.
- * [EGA] For F.R. Germany.
- * [PA] For Far East PX.
- * [PE] For European Mil.
- * [XA] For Asia, Latin A.
- * [XL] For Australia.

REPLACEMENT PARTS LIST

Important safety notice
Components identified by Δ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description
CABINET PARTS			SCREWS, NUTS & WASHERS		
1	SBC666	Power Button	N 1	XTV3 + 10BFN	Tap
2	SUB234	Power Switch Rod	N 2	XTN3 + 12B	Tap
3	SBC745	Push Button	N 3	XTB3 + 10BFN	Tap
4	SUB235	Record/Playback Wire	N 4	XTV3 + 8BFN	Tap
5	SMQ1030-1	Record Lever	N 5	XWG3	Wa
6	[E] SKMSD250-SE	Main Case	N 6	XTV3 + 10BFZ	Tap
6	[XL] SKMSD250-SEK	Main Case	N 7	QHQ1324K	Orn
6-1	QKA1094	Case Foot	N 7	QHQ1324	Orn
8	SUS795	Earth Plate	N 8	XTV3 + 12BFN	Tap
9	SMC6377	Shield Plate	N 9	XTN26 + 8B	Tap
10	SMN1965	Holder Angle	N 10	XTB3 + 6BFN	Tap
11	SMN1980	Strengthen Angle	ACCESSORIES		
12	SMN1975	Headphones Angle	A 1	[XA] Δ SJP9215	AC
13	QMA4624	Headphones Holder	A 2	[E] SQF12388	Inst
14	SME103-5	P.C.B. Holder	A 2	[XL] SQF12538	Inst
15	SNE55-1	Earth Plate	A 2	[EK] SQF12538	Inst
16	SGE1745-3	Cassette Lid (1) Assembly	A 2	[EGA] SQF12539	Inst
16	SGE1745-5	Cassette Lid (1) Assembly	A 3	[E][EH] SJA171	AC
17	SGE1745-4	Cassette Lid (2) Assembly	A 3	[EGA] Δ SFDAC05G02	AC
17	SGE1745-6	Cassette Lid (2) Assembly	A 3	[EK] Δ SJA168	AC
18	SKC1781K99	Case Cover	A 3	[XA] Δ SJA157	AC
18	SKC1781S98	Case Cover	A 3	[XL] Δ SJA157	AC
19	[E] SGT36141	Main Name Plate	A 4	SJP2264	Pin
19	[EK] SGT35682	Main Name Plate	PACKINGS		
19	[EH] SGT35551	Main Name Plate	P 1	[E][EH] SPG5316	Cart
19	[EGA] SGT36061	Main Name Plate	P 1	[EGA] SPG5317	Cart
19	[XL] SGT36031	Main Name Plate	P 1	[XA][XL] SPG5318	Cart
20	SGYSD550W-KE	Front Panel Assembly	P 1	[E][EH] SPG5319	Cart
20	SGYSD550W-SE	Front Panel Assembly	P 3	[E][EH] SPS4608	Cush
21	SGXSD450-SE	Cassette Holder Assembly	P 3	[EGA] SPS4609	Cush
21-1	QBP2006A	Tape Pressure Spring	P 4	SPS4616	Pad
22	SUS797	Holder Spring	P 5	XZB50X65A02	Poly
23	SGXSD250-SE	Damper Gear Assembly	P 6	SPS4627	Upp
24	SBD125	Volume Knob			
25	SJN16	Tape Counter			
26	SMN1976-1	Mechanism Angle			
27	SGXSD550W-KM	Slide Guide Assembly			
27	SGXSD550W-SE	Slide Guide Assembly			
28	SMQ20009	Counter Belt			
29	QJ5039C	Jack Board			
30	Δ SJS9230	AC Inlet			

Areas

* [M] For U.S.A.	* [PA] For Far East PX.
* [E] For European areas except United Kingdom.	* [PE] For European Military.
* [EK] For United Kingdom.	* [XA] For Asia, Latin America, Middle East and Africa.
* [EH] For Holland.	* [XL] For Australia.
* [EGA] For F.R. Germany.	

REPLACEMENT PARTS LIST

Important safety notice
Components identified by Δ mark have special characteristics important for safety.
When replacing any of these components, use only manufacturer's specified parts.

Ref. No.	Part No.	Part Name & Description	Ref. No.	Part No.	Part Name & Description
CABINET PARTS			SCREWS, NUTS & WASHERS		
1	SBC666	Power Button	N 1	XTV3 + 10BFN	Tapping Screw $\varnothing 3 \times 10$
2	SUB234	Power Switch Rod	N 2	XTN3 + 12B	Tapping Screw $\varnothing 3 \times 12$
3	SBC745	Push Button	N 3	XTB3 + 10BFN	Tapping Screw $\varnothing 3 \times 10$
4	SUB235	Record/Playback Wire	N 4	XTV3 + 8BFN	Tapping Screw $\varnothing 3 \times 8$
5	SMQ1030-1	Record Lever	N 5	XWG3	Washer 3 ϕ
6	[E] [EK][EH] [EGA] [XL] SKMSD250-SE Main Case [XA] SKMSD250-SEK Main Case		N 6	XTV3 + 10BFZ	Tapping Screw $\varnothing 3 \times 10$
6-1	QKA1094	Case Foot	N 7	QH01324K	Ornament Screw
8	SUS795	Earth Plate	N 7	QH01324	Ornament Screw
9	SMC6377	Shield Plate	N 8	XTV3 + 12BFN	Tapping Screw $\varnothing 3 \times 12$
10	SMN1965	Holder Angle	N 9	XTN26 + 8B	Tapping Screw $\varnothing 2.6 \times 8$
11	SMN1980	Strengthen Angle	N 10	XTB3 + 6BFN	Tapping Screw $\varnothing 3 \times 6$
12	SMN1975	Headphones Angle	ACCESSORIES		
13	QMA4624	Headphones Holder	A 1	[XA] Δ SJP9215	AC Plug Adaptor
14	SME103-5	P.C.B. Holder	A 2	[E] [EH][XA] [XL] SQF12388	Instruction Book
15	SNE55-1	Earth Plate	A 2	[EK] SQF12538	Instruction Book
16	SGE1745-3	Cassette Lid (1) Assembly	A 2	[EGA] SQF12539	Instruction Book
16	SGE1745-5	Cassette Lid (1) Assembly	A 3	[E][EH] [EGA] Δ SJA171	AC Power Cord
17	SGE1745-4	Cassette Lid (2) Assembly	A 3	[EK] Δ SFDAC05G02	AC Power Cord
17	SGE1745-6	Cassette Lid (2) Assembly	A 3	[XA] Δ SJA168	AC Power Cord
18	SKC1781K99	Case Cover	A 3	[XL] Δ SJA157	AC Power Cord
18	SKC1781S98	Case Cover	A 4	SJP2264	Pin Cord
19	[E] SGT36141	Main Name Plate	PACKINGS		
19	[EK] SGT35682	Main Name Plate	P 1	[E][EH] [EGA] [XA][XL] SPG5316	Carton Box
19	[EH]		P 1	[E][EH] [EGA] [XA][XL] SPG5317	Carton Box
19	[EGA] SGT35551	Main Name Plate	P 1	[EK] SPG5318	Carton Box
19	[XA] SGT36061	Main Name Plate	P 1	[EK] SPG5319	Carton Box
19	[XL] SGT36031	Main Name Plate	P 3	SPS4608	Cushion (L)
20	SGYSD550W-KE	Front Panel Assembly	P 3	SPS4609	Cushion (R)
20	SGYSD550W-SE	Front Panel Assembly	P 4	SPS4616	Pad
21	SGXSD450-SE	Cassette Holder Assembly	P 5	XZB50X65A02	Poly Bag
21-1	QBP2006A	Tape Pressure Spring	P 6	SPS4627	Upper Pad
22	SUS797	Holder Spring			
23	SGXSD250-SE	Damper Gear Assembly			
24	SBD125	Volume Knob			
25	SJN16	Tape Counter			
26	SMN1976-1	Mechanism Angle			
27	SGXSD550W-KM	Slide Guide Assembly			
27	SGXSD550W-SE	Slide Guide Assembly			
28	SMQ20009	Counter Belt			
29	QEJ5039C	Jack Board			
30	Δ SJS9230	AC Inlet			

• Change of Part List
(RS-B17W [PA][PE] from RS-D550W [E] "Black Type")

Ref. No.	Change of Parts No.		Description
	RS-D550W [E] "Black Type"	RS-B17W [PA][PE]	
CABINET PARTS			
1	SBC666	SBC666-1	Power Button
3	SBC745	SBC745-1	Push Button
6	SKMSD250-SE	SKMSD250-SEK	Main Case
16	SGE1745-5	SGE1748-1	Cassette Lid (1) Assembly
17	SGE1745-6	SGE1748-2	Cassette Lid (2) Assembly
19	SGT36141	SGT35740	Main Name Plate
20	SGYSD550W-KE	SGYSB17W-KE	Front Panel Assembly
24	SBD125	SBD125-1	Volume Knob
ACCESSORIES			
A2	SQF12388	SQF12541	Instruction Book
A3 Δ	SJA171	SJA168	AC Power Cord
PACKING			
P1	SPG5316	SPG5349	Carton Box

• Change of Part List
(RS-B24W [M] from RS-D550W [E] "Black Type")

Ref. No.	Change of Parts No.		Description
	RS-D550W [E] "Black Type"	RS-B24W [M]	
CABINET PARTS			
16	SGE1745-5	SGE1752-1	Cassette Lid (1) Assembly
17	SGE1745-6	SGE1752-2	Cassette Lid (2) Assembly
19	SGT36141	SGT35971	Main Name Plate
20	SGYSD550W-KE	SGYSB24W-KE	Front Panel Assembly
ACCESSORIES			
A2	SQF12388	SQF12446	Instruction Book
A3 Δ	SJA171	SJA170	AC Power Cord
A4	SJP2264	QEB0125A	Pin Cord
PACKING			
P1	SPG5316	SPG5400	Carton Box

